APPRECIATION OF MUSIC IN RELATION TO PERSONALITY FACTORS

PETER J. MARTIN

SUBMITTED IN CANDIDACY FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF PSYCHOLOGY: FACULTY OF ARTS

UNIVERSITY OF GLASGOW 1976

TABLE OF CONTENTS

PART III PRACTICAL INVESTIGATIONS INTO THE NATURE OF MUSIC APPRECIATION

PART IV PERSONALITY IN RELATION TO MUSIC APPRECIATION

A C K N O W L E D G E M E N T S

There is a large number of people without whom the researches described in this thesis could never have been satisfactorily completed and to whom I am most grateful.

At Glasgow University Professor Pickford and Mr. Gardner both supervised my work and gave generous encouragement. Mrs. Latham introduced me to the complexities and delights of computing, and devoted much of her own time to this end.

At Jordanhill College the Principal, Dr. Bone, my colleagues, and the Secretary Mrs. Gotts, in the Psychology Department, the staffs in the Music Department, the Library and the General Office, and the students in the Music Department have all co-operated with and helped me.

At the Royal Scottish Academy of Music and Dramatic Art the Principal, Dr. Barritt, and the Director of the School of Music, Mr. Stone, made it possible for me to test some of their students. My thanks are due to them and to those students who gave up their own time to assist me.

For permission to use their school pupils I am indebted to the Head Teachers, the Principal Music Teachers and their staffs in Eastwood High School, Jordanhill College School, Knightswood Secondary School, Paisley Grammar School, and Williamwood High School. Furthermore the practical assistance provided by the Advisor in Music for Renfrewshire, Mr. Ladds, must be acknowledged.

Miss M. Russell, my typist, has put up with all the normal problems of typing a thesis together with a great variety of others that stem from my idiosyncratic style of working. That she cheerfully accepted and overcame the difficulties to complete the work so well deserves the highest commendation.

It is to my wife and family that my debt of gratitude is greatest. For all too long they shared their lives with a thesis rather than a husband and father. I am most deeply grateful for their years of tolerance, assistance and support.

S U M M A R Y

"APPRECIATION OF MUSIC IN RELATION TO PERSONALITY FACTORS"

The study falls into two parts, the investigation of what is meant by 'musical appreciation' and the investigation of the personality traits that characterise the musically appreciative.

A review of the literature reveals that there is no agreement as to what music appreciation is. A practical investigation using a specially constructed questionnaire, in which 33 musicians were asked to indicate what they conceived music appreciation to be, confirmed the lack of concensus evident in the literature.

To investigate the several aspects of music appreciation, the results of 200 secondary school pupils on a series of music tests and on a questionnaire concerning musical interests and experience were factor analysed. The same music variables were analysed using different techniques and the results of the different analyses agree well. Twelve factors were identified. While no one factor stood out clearly from the others as a 'music appreciation factor', eleven of the factors can loosely be described as relating to music appreciation. These factors can be classified under three headings, factors of test ability, factors of performance on an instrument and factors of musical taste. (The twelfth factor concerns how musical the home background is.) The 'taste factors' are considered to be particularly valid, and they are confirmed by an independent study using a semantic differential technique with the same subjects.

To investigate the personality structure of the musically appreciative, one approach was to correlate the school pupils' personality test results (from Eysenck's J.E.P.I. and Cattell's H.S.P.Q.) with measures from a number of musical variables, which were chosen because of their intrinsic importance and because they represented the 'appreciation' factors produced in the factor analyses. A second approach, which yielded results consonant with the first, made use of the results of E.P.I. and 16P.F. from more than 200 musicians and music students.

Without doubt, 'intelligence' is the trait that most characterises the musical. However, the musically appreciative are also sensitive and emotional. It is suggested that their emotionality reveals itself as the driving force for any one of many different musical interests or pursuits. What characterises the musical person is the (musical) end to which this drive is directed. Why this drive is directed into musicality may be the result of other personality traits and of home background.

Home background is found to be a more important influence on music appreciation than personality, though the two are not independent: those with a musical personality tend to come from musical homes. The magnitude of the relationships between personality and music appreciation and between home background and music appreciation were determined by multiple regression analyses and, disappointingly, are found to be rather slight.

The personality characteristics of musically appreciative school pupils are not entirely the same as for musicians and music students. The differences are in line with published findings relating personality variables with the academic achievement of pupils/students at different levels of education.

With both the school pupils and the adult musicians, some regularly occurring variations from the basic appreciative personality profile are recorded; e.g. different personality structures are associated with different tastes in music; brass players are more extravert; men musicians are more tough-minded and shrewd than women. The variations are sufficiently great to accommodate a great variety of personalities among the musically appreciative.

A number of test instruments were devised for the study. Apart from the questionnaires and the semantic differential, already referred to, a test of ability to discriminate composers by their style was developed. This test is promising because it appears to measure rather different skills from those measured by other tests, because it is possibly the first genuinely objective test in music in which judgements about musical extracts must be made, and because it is popular with teachers. Although the test does not yet reach the technical standards required of tests, further research and development on it are considered well worth while and are planned.

CHAPTER 1

INTRODUCTION AND OVERVIEW

Origins, Aims and Methods - A General Statement

Origins and aims: It is almost a truism to claim that the 'raison d'etre' for works of art is to be appreciated. In the world of education - whether the formal education of schools or the less formal education provided by the mass media, particularly radio and television - there has recently been increasing attention given to promotion of appreciation of the Arts. Education is seen as more than just providing the skills necessary for earning a living, it has to do with all aspects of life including the use of leisure time: consequently it has had to concern itself to an increasing extent with aesthetic topics.

Observation of some of those most closely involved in this educational process, in particular music teachers and music teachers in training, has prompted questions such as, 'What is it that music teachers are really attempting to do?' A standard type of reply to such questions often takes the form,

> "Music teaching is much more than the teaching of singing; it is concerned with personal development through encouraging people to appreciate music to the full. As with all teaching this means exposing people to experiences and ideas which may well result in changes to them - changes to their attitudes, their values, their value systems. For some this may involve teaching performance skills, for others it may involve teaching listening skills."

General statements, such as this, leave unanswered the basic questions about the promotion of appreciation particularly with respect to music and music teaching. Indeed the concept of appreciation, despite its importance, has remained rather nebulous. However, the kind of answer given above does raise further questions about the relationship between music and personality.

Lack of reliable information concerning the relationship between music and personality is also evidenced by the fact that myths about musicians are commonplace. Schoolboys in many schools treat their music teachers differently from other staff because they 'know' they are 'different'. Musicians are sometimes bracketed with artists as being 'creative types', a

a/

a fact which can be used in mitigation for Bohemian lives which show less than normal concern for social niceties and norms. Composers - so some would have us believe - are immoral, antisocial and/or mad. But what foundations are there for such beliefs?

There are biographies of composers, there is some biographical material about eminent performers and there is a small number of studies which relate some aspect of personality to some aspect of musicality. But there is a dearth of systematic information about musicians as a group.

From considerations like these, this research emerged and it was to fall into two main parts which reflect, in a rough way, its origins; but the parts are not independent. The self-imposed tasks, on which this research is based, have been:

1. To investigate the nature of music appreciation, in its fullest sense.

2. To find out what personality correlates there are to music appreciation.

It should be noted that the second of these provides the real crux of the work, as well as being the more psychological task. Yet it cannot be undertaken without a satisfactory resolution of the first. There are, undoubtedly, many other researches which could have developed from the starting points described above, but to have allowed the scope of this research to become even wider would have risked it becoming less coherent.

It should be stressed that this is primarily a study about 'personality', which is also deeply concerned with the nature of 'music'. However it is worth remarking that it may also have some relevance as a study of educational psychology with implications for the teaching of music as a subject.

The problem of defining music appreciation: A great deal has been written about music appreciation. Indeed one might argue that too much has been written. Our first task in investigating the nature of music appreciation was to clarify the present situation. Fresh insights and a zeal for experimentation were less urgent than thorough reviews of the literature. The problem here is essentially a semantic one. In consequence, the first major section of work reviews the published material.

This type of review has been made before. But most such reviews have some weaknesses. Thus Scholes, writing as a music educator (e.g. Scholes, 1935) provided reviews that have been most influential. But his work is now seriously out of date. Many of the more recent pieces of work are of

of/

of high quality, but suffer (as did Scholes') from too limited a coverage. This criticism could apply, quite understandably, to the wealth of books on the Psychology of Music (Mursell, 1937; Schoen, 1940; Seashore, 1940; Révész, 1953; Farnsworth, 1958; Valentine, 1962; Lundin, 1967; Shuter, 1968) or to those about teaching of music (Brocklehurst, 1962, 1971; Franklin, 1972; Rainbow, 1968; Bentley, 1966). Such books must deal with many topics and it would be inappropriate for them to provide wide ranging reviews of one term 'music appreciation'. Even more technical works which look more specifically at music appreciation, provide rather one-sided reviews. Thus, for example, Green's review (Green, 1967) is long, detailed and immensely thorough but focuses rather heavily on the writings of music educators so that although work from other traditions is included, the overall picture is unbalanced. Our review is quite deliberately broad in coverage. We accept the consequent risk of lacking in depth on some topics. However, we supplement the review with practical, and possibly more psychological, investigations.

Methodology and rationale concerning personality: Our conclusions regarding the nature of musical appreciation (from our first task) provide the foundation for the study of its personality correlates (our second task). In the most general terms the task here is to find what differences, if any, are discernible between those who 'appreciate' music and those who do not. Several different aspects or 'meanings' of appreciation are necessarily adopted and it is recognised that there is no clear dichotomy between those who do and those who do not 'appreciate' music. This last point has special relevance when considering musical preferences where the task is to find differences between those who like (say) classical music and those who like (say) brass band music and those who like (say) folk music. The differences considered are, primarily, personality differences of the sort that are measured by psychological tests of personality. However, we believe that 'personality' should be treated as an all-embracing blanket term and we have, therefore, also included ability and aptitude. The relationships between the personality/ability/aptitude variables and the appreciation variables can be further illuminated by a consideration of environmental variables and these are included in this study.

The policy of considering many possible variables under the heading 'personality' poses problems, for there are almost as many different approaches to the study of personality as there are ideas about music

music appreciation. (In passing one might remark that Allport (1937) discusses some 50 different definitions of personality.) There is, however, one major difference between the two fields of study, music appreciation and personality. Only with the latter are there well tried theories or 'models' which have been worked out in some detail.

Two distinctions are sometimes made regarding different approaches to personality. The first is between nomothetic and idiographic approaches. Whilst this dichotomy is probably a false one, for the two are complementary, there is little doubt that psychology is predominantly a nomothetic science, despite recent trends to make it less so. We believe that the generalisations that derive from successful scientific studies can explain the behaviour of the individual: thus we believe the nomothetic approach to be the more fruitful. In this research this approach is adopted. The other distinction that is made, and it is related to the first, is between analytically oriented personality theories and those based on the evidence of rather more systematic and scientific research. The latter more readily provides the conceptual framework and the tools required for work which adopts a nomothetic approach, and is therefore preferred.

The theories of Eysenck and Cattell are well developed and typify this position. We have chosen for this research to base the study of personality on their work. Although no further justification for this decision will be given, it is recognised that no theories are wholly adequate or free from criticism and that other theories of personality may eventually prove more fruitful for studies such as this. Both Eysenck and Cattell base their theories on the results of factor analyses and we have used the term 'Personality Factors' quite deliberately in the title for this investigation. Although the word 'factors' can be taken as synonymous with 'characteristics' and this is quite proper and legitimate, the more restricted usage of the word accorded by Eysenck and Cattell is not inappropriate in this study.

Similar to the type of study we are undertaking are studies relating personality to academic achievement. Such studies are relatively young and are almost invariably surveys of the present situation. There are far fewer studies relating personality to various aspects of music. Consequently in this much more youthful area, there is a need at the present time, to accumulate a body of facts which can be linked to established personality theories. It is therefore far from inappropriate to use survey techniques rather than tightly controlled experiments as the basis of our research. This really is no more than the practical consequence of the more general truth that without some solid basis of facts theorising is hazardous; and that rigorous experimentation can only be developed from strong theories.

The virtues of heterogeneity: One further point concerning methodology might profitably be made. It is that, in studying any topic such as we have chosen, it is desirable to gather ones data from as heterogeneous a group of people as possible. Thus our subjects range in musicality from non-musical school pupils to qualified musicians. This parallels the point made by Mursell (1937), "We must try our developed tests upon individuals known to be conspicuously musical and those known to be conspicuously non-musical" to try to discover where the most crucial and significant differences are located. This too is in accord with our stated principle of making the coverage of this study as wide as reasonably possible. There is a very real problem here of distinguishing the 'musical' from the 'non-musical'. We have already implied or suggested that there may be no one thing, 'musicality' or 'music appreciation', and we use many different criteria in this research. Thus there are people who are conspicuously non-musical, when judged by one criterion, who do appreciate music, if judged by some other criterion. Equally there are musicians who are soulless, but competent technicians, who by some criteria would be rated unmusical. This unfortunate fact of life strengthens the need to gather data from as diverse a group as possible.

Intended outcomes of the research: With its origins and aims outlined, it is appropriate to indicate the intended kinds of outcome of this research. First is an analysis of what music appreciation is or is not. One approach is to provide a description of what others believe it to be. The second approach is a description of the factors of music ability, music appreciation and music experience based on empirical investigation and factor analyses of the results. It could be argued that the first approach is more musicological and the second more psychological. Neither approach, by itself, is fully adequate but, we believe, the two approaches complement each other. The second kind of outcome is a detailed description of the personality profiles of the 'musically more appreciative'. Each factor of musicality that emerges from the factor analysis is treated as separate and in consequence several personality profiles are elucidated.

Some consideration of the determinants of the musical personality makes the third kind of product of this study. Here attention is given to topics such as whether the factors associated with musical appreciation are largely inherited or whether home variables are as important as basic personality variables. The intention is to provide at least a partial answer to the question, 'To what extent can the non-musical person be made more musical?'.

Structure of the Thesis

Our aims and some of the approaches used have been indicated in the most general way. It may now be useful to describe (again in general terms) the structure of this thesis. The primary aim of this is to make the work more readable: but it also provides an opportunity to describe in a little more detail the various elements that together make the whole.

The work has been divided into four parts. The first part is, apart from this introductory chapter, composed of reviews. Although Chapter 4 considers the scant literature on the personality correlates of music, the most important function of this part is to consider the question, 'What is music appreciation?'. This is dealt with in Chapter 2, and to a lesser extent, in Chapter 3. No real answers are given to this question in this part. Our conclusions regarding the nature of music appreciation are provided at the end of Part III, the part which deals with our practical investigations into the problem of defining/describing the nature of musical appreciation. This problem is attacked from two angles. First (Chapter 7) is an analysis of the beliefs of a group of qualified musicians as to what the term 'music appreciation' implies or should imply. This could, potentially, enable a 'lexical definition' to be produced. However such a definition would not necessarily describe abilities or characteristics that are found to exist in practice. Our second approach to this problem (Chapter 8) focuses on the structure of musical abilities, activities, interests and attitudes as revealed by factor analytic studies. Questionnaire and test results from secondary school pupils provided the basic data for this.

Conclusions about the nature of music appreciation are drawn in Chapter 9 and to do this, reference is made to the reviews of Part I, as well as to the practical work of Part III. Part II describes the planning, preparation and carrying out of the fieldwork. Possibly of most importance here is Chapter 6, in which the development of new test materials is fully described. Part IV follows up the factor analytic studies based on school pupils' results and describes the personality correlates for the several 'factors' of music appreciation. Also in this part are provided descriptions of different groups of musicians. While the work described in this part is probably no more important than that described in Part III, it does provide the culmination of the whole work of this thesis.

PART I

REVIEWS OF THE LITERATURE

CHAPTER 2

WHAT IS MUSIC APPRECIATION? - SOME REVIEWS

Introduction: The Problem of 'Definitions'

Purpose of the chapter: What is music appreciation? This question cannot be answered simply. If dictionaries, or texts on music teaching, or the works of psychologists interested in music, or the writings of musicians are scrutinised, the fact becomes progressively clearer that there is no agreed definition of 'music appreciation'. At the present time there are writers who do not use this term, and who think that the concept of 'music appreciation' is an outmoded one. However, there are others who would not agree with this point of view; but unfortunately they do not all make fully explicit what this term might mean or imply. Consequently it is necessary 'to read between the lines' to determine their beliefs on this matter - and this is always a dangerous occupation. Even those who do use the term, more or less explicitly, do not agree about how it is to be interpreted. Indeed it is not too difficult to find viewpoints differing to such an extent that they have absolutely nothing in common.

In this most unsatisfactory situation, the first attack on the problem of defining (or describing) 'musical appreciation' must be the review of the major contributions in the literature on this confused topic. However, it is important to hold clearly in mind that different authors use different kinds of definitions or statements. It is therefore worth while to deal with some of the theoretical problems of defining a term such as 'music appreciation' before reviewing the literature and before attempting to state our own beliefs as to what the term does mean.

Nominal and real definitions: In an article in which he discusses various kinds of definition, Miles (1957) distinguishes 'nominal definitions', which are concerned with the meaning of words rather than with the things for which the words appear to stand, with 'real definitions', definitions which are based upon factual evidence and are supposed to tell us the 'nature of the thing defined'. The significance of this is illustrated by considering the case of the hexohippus or six-legged horse. A nominal definition of

of/

of 'hexohippus' for 'six-legged' horse is perfectly acceptable. But, one might ask, does such a beast really exist? The stipulative (nominal) definition is rather pointless if the beast does not really exist. Coining the term and clarifying the concept may, however, provide the stimulus for instituting a search for the beast. Who, after all, would look for hexohippi if the word had never been coined or the idea of 6-legged horses propounded? We might note that even if an hexohippus is found, it might still be so rare and inaccessible that no function is served by the term 'hexohippus' other than a purely naming one.

In like manner, it is pointless to have nominal definitions of music appreciation if such definitions do not refer to real life experiences. Here if we take simple definitions, there is usually no doubt about their applicability. Thus the definition, "To appreciate music means to enjoy it" may be a nominal definition of the stipulative type* but it does refer to real experience: a vast majority of people do enjoy music. But consider a more complex definition such as, "Appreciation of music implies that the listener enjoys a considerable emotional satisfaction from his understanding of the form, and other technical aspects of the work - an understanding in which he is able to comprehend the unity in the diversity of the music". Here it is valid to ask if such a response <u>is</u> elicited by musical stimuli. Despite the unsought, but considerable, additional problem in deciding the answer to this because some of the terms in the definition (such as "considerable emotional satisfaction") are themselves highly ambiguous, the evidence is probably strong enough to support a belief that 'appreciation of music' as defined here <u>is</u> real. Yet even if this is so, how many people do appreciate music in the sense defined? The available evidence suggests that very few do. But if this is the case, is it profitable to use a stipulative definition like this? The answer one suspects is very likely to be, 'No'.

In the reviews that follow, reference is made to the work of many writers. A great many are unwilling to attempt a definition of music appreciation, and this may be wise on their part. Others do provide their own stipulations as to what they take music appreciation to mean. Inevitably these many stipulative definitions are different and, whilst none of these are 'wrong' or 'right', some may well be more useful than others in that they better describe real phenomena which occur often enough to be worthy of study. From the review material, one of our tasks (which is also dealt dealt/

*With a stipulative definition the writer stipulates what he takes the defined term to mean. Even if the usage is bizarre and idiosyncratic this is useful in helping meaningful communication to take place. There is a second kind of nominal definition, the lexical definition.

dealt with in Chapter 7) is to attempt to find if any 'lexical definition' emerges. Lexical definitions are the second type of nominal definition Miles distinguishes and they are characterised by relying on appeal to common usage. A lexical definition will emerge if there is something in common in the different (stipulative) definitions. However, like stipulative definitions, lexical definitions need not reflect the real situation.

Difficulty of distinguishing nominal and real definitions: Miles points out that the distinction between 'nominal' and 'real' definitions is often not as clear and precise as it might seem. Thus many stipulative definitions are the result of accurate observation, and the definition labels and describes what was of importance in the observation. The first definition we used, "To appreciate music means to enjoy it", could well be described by Miles as a 'real' definition of the type he calls "Description plus naming". Since many people really do enjoy music, it is useful to give this phenomenon a name - e.g. 'appreciation'.

As many writers do not indicate what observations have led to their definitions, it may be difficult to distinguish the stipulative definitions which are genuinely 'nominal' from those which are in effect 'description plus naming' and which are therefore 'real definitions' dealing with real phenomena.

Reviewing psychological investigations will allow a consideration of 'real' definitions. These could indicate the extent to which theoretical writings about music are in touch with (or out of touch with) reality or are merely providing nominal definitions.

In conclusion, it should be noted that psychologists tend to be more concerned with studying reality than discussing semantics. Nonetheless, even for them, lexical definitions can serve a very valuable function in that they can highlight areas worthy of investigation. This, I believe, is the case with music appreciation.

Music Appreciation - The Historical Perspective

Introduction: In past centuries the ordinary man-in-the-street had but little opportunity to hear orchestral, or other seriously conceived music, apart from church music. In the 17th and 18th centuries, and possibly to a lesser extent in the 19th century, there were private orchestras for those of

of/

of the nobility who had a taste for good music and the desire to offer their patronage to musicians. But the ordinary man received little benefit from all this. Of course, it would be quite wrong to equate 'orchestral' music with 'good' music - or even to imply that appreciation can only occur when there is good music to listen to. But where the opportunity to hear orchestral music is lacking, musical appreciation must take on a more restricted meaning. Even in the 19th century there were still considerable barriers to the hearing of orchestral music; these were as often financial as social. As is pointed out by Mackerness (1964) in his most valuable "Social History of English Music", the expansion of music and the development of new orchestras did not necessarily provide the chance to attend concerts for often the concerts were subscription concerts which even some of the middle class might not be able to afford. It has only been during this last century that serious music has become generally and widely available for all sections of the community, no matter where they live. State subsidies to major orchestras may have helped to popularise "worth while" music but it was the advent of the phonograph and gramophone records and the mass media, especially radio, that has revolutionised our listening habits. Today it is hard to avoid hearing serious music almost every day (though some might well argue that most of us have learned not to listen to it) for even the 'background' music on films, television and radio is often of a high standard.

It was in the early years of this century, with the rapidly increasing opportunities to listen to music that the music appreciation movement was born in this country. Not surprisingly it developed in the world of education, for with the provision in Britain of education for all, what could be a better way of bringing music to all than by providing guidance in listening? Then, as now, not everyone could hope to become a musical performer: the practical difficulties would be insuperable. But all could gain benefit from music through appropriate teaching in schools, i.e. from the teaching of listening skills in the 'music appreciation' lesson. However, whilst Macpherson and Scholes, who are the musicians most associated with the 'movement', were revolutionary in their own way, they were far from being the first to stress the needs of the <u>listener</u> of music, as distinct from the <u>performer</u> of music. Consequently although the music appreciation movement dates from the beginning of this century, to understand it properly we must view it in its historical perspective: we must consider the foundations as well as the superstructure.

Early views on the functions and effects of music: Aristotle, in the 4th century B.C., writing in the "Politics", distinguishes three levels of enjoyment found in those listening to music. The lowest, which we might nowadays call the 'sensual' level, has some (slight) value: the listener derives amusement and relaxation. The second level might be called the emotional: here music should lead to the feeling of pleasure in an emotionally healthy way. This point has extra emphasis when we consider that in many of the countries around Greece at Aristotle's time, music was used as a powerful force in magic and its effects would not always lead to emotional health. The highest level, an ideational or spiritual level, is achieved when the process of listening to music leads to a growth of spiritual wisdom.

> "In music moral qualities are present, represented in the very tunes we hear . . . . There is a certain affinity between us and music's harmonies and rhythms; so that many experts say that the soul is a harmony, others that it has harmony."

It is interesting to note, in passing, that the belief that music has a spiritual as well as a moral value has been widely held and is still widely held by many. Strunk (1950) points out that St. John Chrysostom in his exposition of Psalm XLI states,

> "For nothing so uplifts the mind, giving it wings and freeing it from the earth, releasing it from the chains of the body, affecting it with love and wisdom, and causing it to scorn all things pertaining to this life, as modulated melody and the divine chant composed of number."

These kinds of viewpoint may not be surprising in those who hold strong religious beliefs. It is rather more surprising, in my view, when it is found in a 20th century music educator whose writings do not reveal any special religious or moral bias.

> "It is an insult to a man of Beethoven's genius to suppose that he spent his life stringing tunes together and lavishing upon them all the resources of art with no object in view but that of delighting the ears of men with a concourse of sweet sounds. No, the value of Beethoven's music, and of all great music, is a moral value."
>
> Trotter (1924)

The problem for psychologists, if not for theologians or musicians, lies in understanding what precisely are the spiritual and moral benefits of listening to great music. The psychologist in eschewing the transcendental is prevented by a conceptual and language barrier from an understanding of the nature of the 'spiritual' in music. If his scientific principles are to be observed, he must abandon this concept and seek other explanations of the nature of music.

Making music more intelligible to the listener - church music and singing: Throughout Europe, the Church has always done much to foster music. However it must be added that church music has often been unsuited to the worshipper. From the 12th to the 16th centuries, the conventions used in church music became progressively more complex and there was something of a monopoly of musical thought within the Church. Unfortunately the musicians of that time made their music too elaborate for the musically untutored to understand, but this was of little import when the music was composed to the greater glory of God. An earthbound laity may have disagreed with this sentiment for the music that surely should have carried them to higher spiritual levels was in effect a barrier to that end.

The time of the Reformation was a time of change in music. Just as the Church was re-formed so that its message might be given for the ordinary man to understand, so all aspects of Church procedure were altered. Its music was brought down to a standard that non-music specialists might understand and benefit from. Both Luther and Calvin, in the first half of the 16th century, recognised the problems of the typical worshipper listening to church music: Latin and plainsong with many notes to the syllable had they considered become a barrier, not an aid, to meaningful worship. They therefore placed a considerable emphasis on involving their congregations in the singing of hymns - but hymns that were of a level of difficulty that they could cope with easily. Luther in the foreword to the Wittenburgh Gesangbuch wrote,

> "That the singing of spiritual songs is
> a good thing and one pleasing to God is,
> I believe, not hidden from any Christian . . . .
> Accordingly I and several others have brought
> together certain spiritual songs. . . . .
> These, further are set for four voices for I
> wished that the young (who apart from this,
> should and must be trained in music and in
> other proper arts) might learn wholesome
> things and thus yield willingly to the good."

However, while the common folk within the Protestant communion may have benefited from the change in the musical tradition, in essence their advantage lay in the simplifying of church music to bring it down to a level low enough to appeal and be understood by them. It was not the case of deliberate education to enable the ignorant to understand the complexities of the earlier church music. Nonetheless it seems likely that Protestant congregations did develop in the skills of musical performance and appreciation. A parallel can be seen today, for there are still many whose only music making is in hymn singing in church. Yet of these people a considerable proportion have learned to derive pleasure, not only from the relatively simple music they themselves sing, but also from listening to the musically more ambitious concerts put on by their church choirs: (though it should be noted that the choir's music is often in essentially the same Victorian style!). In discussing developments in church music, we have turned our attention from listening to performing. Yet it is relevant to do this, even if 'appreciation' is about listening to music, since the performer must monitor his own performance and be aware of those around him. He must be able to listen in order to perform.

This argument can be pushed further to suggest that appreciation <u>results</u> from active participation in music-making. One might cite John Curwen who showed that more benefit was to be gained from performing than from passive listening. In early Victorian times he advocated choral singing to reduce musical illiteracy, because he found, quite pragmatically, that this worked. It should of course be mentioned at this stage that the work done by John Curwen in promoting tonic sol-fa and the work by other teachers, such as Glover, John Hullah and Samuel Hadfield, brought musical literacy to many and this in turn enabled the choral traditions of the latter part of the 19th century to develop and flourish.

On the other hand, techniques that enable more people to take part in making music and which assist in making their enjoyment the greater as a result, do not necessarily tell us about the nature of their appreciation. Moreover it is possible that with some people they may only have appreciation (whatever it is) of music that has become familiar. Thus the oft-repeated slogan that music appreciation must develop, or even can only develop, from an active participation in the performance of music, whilst it is not necessarily wrong, is limited in that it fails to specify what is the advantage of practical music-making. It is so lacking in precision as almost to be meaningless.

Although the various branches of the Church may have been important in providing opportunities for composition or for singing, and the Roman Catholic Church followed the lead of the reformed Churches in simplifying its music, they have not contributed to any great extent to the beginnings of the music appreciative movement. In this respect the first really significant work was the book "History of Music" (Burney 1789). This was addressed to, "ignorant lovers of music", and while this may sound rather disparaging out of context, it was not meant to be so. The author pointed out that, "there have been many treatises published on the Art of musical composition and performance but none to instruct ignorant lovers of music to listen and to judge, themselves". We see that his most admirable aim was to help those who were unaware of the finer points of music, to develop in the skills of listening and appreciation.

Books and methods to assist the musical development of the amateur: The need for such a work as Burney's had come about as the result of at least two changes over the two previous centuries. First, social conditions had changed radically. According to Mackerness (1964) a society had developed, "which had come to a tacit agreement that 'the arts' are to be regarded as an ornament to life, and are to a large extent the acquired property of suitably enlightened cognoscenti". Burney's definition of music bears this out:

> "Music is an innocent luxury, unnecessary, indeed, to our existence, but a great improvement and gratification to the sense of hearing."

Second, the music that the 'cognoscenti' would listen to had increased in complexity. According to some authorities it was rare for a work in the 16th century to be of more than about five minutes duration. But the Italian operas, and the works of composers such as Purcell, Handel and particularly Bach were much more substantial. Those who were fortunate enough to be able to satisfy their desire to listen to serious music, but who were not trained as musicians, would need some advice on the art of listening - advice such as Burney did provide.

It is interesting to speculate to the extent to which Burney may have been influenced by Rousseau, whose writings were freely available in English translation. Although he had no training in the subject, Rousseau showed a

a passionate interest in Music and his knowledge of the subject was such that he could produce a dictionary of music (1786) and attempt to construct a reformed notation. The application to music education of the 'child-centered' approach, which he so strongly advocated in 'Emile', would be to allow a love of music to develop first before any possibly traumatic attempts to teach skills of performance or of analysing form etc. And this love of Music could come initially only from hearing and listening to music.

In the late 1820's two series of lectures focused attention on the listener. The lectures of the Swiss music publisher, Hans Nageli, entitled "Vorlesungen uber Musik mit besonderer Berucksuchtigung der Dilettenten" (Lectures on Music, with particular reference to amateurs) did not receive very much notice even although they were published in book form in 1826. However, considerable success was achieved by Francoise Joseph Fetis. His lectures of 1829 were first published in 1830 and according to Scholes (1935) they were to run to 19 editions, some of them pirate editions, both in English and several foreign languages. Yet we must not attach too much weight to his contribution, for although he identified with the 'ordinary listener' he did not (in Scholes' terms) distinguish 'listener-knowledge' from 'performer-knowledge'.

Mention has already been made of the work of the Rev. John Curwen (1816 - 1880) and other teachers of his time. Their work is of the greatest significance for although the singing of songs had always been the most noteworthy secular contact with music that the ordinary man had had, this singing had not necessarily brought him into contact with really great music. But the teaching, which had made large numbers of the population musically literate, did enable this to be achieved. Especially important was the emphasis these 19th century teachers placed on aural training (and one still frequently hears this being emphasised). However, their success was in providing a means to an end, not in providing a comprehensive and fully intelligible definition of that end: music was not for discussing but for enjoying, and all should have the chance to enjoy it. Yet undoubtedly the music appreciation movement owes a great deal to John Curwen and the musical climate that he helped to create.

Just as we noted that the changes from early Church music to Baroque music was an important one which contributed, to some extent, to the need for a work such as Burney's guide to the 'ignorant lover of music', so the musical changes from the mid-18th to the mid-19th centuries were just as important. In 1767 Richard Gregory wrote,

"The/

wrote,

> "The present fashion is to admire the style of composition lately cultivated in Germany, and to despise Corelli as wanting in spirit and variety. The truth is, Corelli's style and this will not bear a comparison."*

Similarly Charles Dibdin seriously described Haydn's music as,

> "strong effusions of genius turned into frenzy, and labouring as ineffectually to be heard as a flute in a belfry, or equity in a court of justice."**

However,by the mid 19th century, romantic music had got into its stride. Haydn, Mozart and Beethoven, with progressively more sophisticated instruments, were producing new effects in their music and new effects on their listeners. And with the flowering of symphonic music, "form was the antidote to musical boredom". As we shall see the study of form was to become one of the central topics in 'music appreciation', and around 1900 there were many who would argue that it was the symphony that embodied '<u>the</u>' form, the only really important form musically.

As there was a great movement in the 19th century that improved the ability of large numbers as performers, mainly as singers, so there were circumstances that were to make for more intelligent listening to music. Thus annotated programmes became normal. The first reported instance of the use of the annotated programme seems to be in 1768 when Thomas Arne produced one for a concert of glees and catches. But little over half a century later they were relatively common.

In 1880 there was published a most influential book, Gurney's "The Power of Sound". One indication of the value of his work is that he is considerably quoted by those who have followed on much later. Thus, for example, Valentine (1962) in a footnote comments on the regularity of his quotations from Gurney which results from the insightful yet comprehensive comprehensive/

---

*Gregory, A Comparative View of the State and Faculties of Man. 4th Ed., quoted in Mackerness.

**Dibdin, Musical tour, Letter XLIV, quoted in Mackerness.

comprehensive analysis of the processes of listening. Listening (or hearing) was the focus of Gurney's work and he distinguished two ways of hearing, the 'definite' and the 'indefinite'. The latter was characterised merely by experiencing, "successions of agreeably toned and harmonious sound", but was somehow inferior to the former. Where the hearing was 'definite', there had been an active process of listening which had essentially been directed to the perception of the form of the composition. In a similar vein, W. H. Haddow (1895) discussed in a chapter entitled "Faculties of Appreciation" the response to music and suggested that there are distinct kinds of response. On the highest level,"we appraise an artistic work not by any test of sensuous pleasure or emotional stimulus, but by some definite and intelligible scheme of aesthetic laws". It is through this kind of response he claimed that we achieve, "our appreciation of style, our appreciation of structure and in turn our faculty for music criticism". For he believed that all musical criticism must be based on musical appreciation and that Music can never be adequately criticised on sensual grounds because these are subordinate to the intellect.

Gurney's must be considered the last major work before the 'music appreciation movement' began its development. And his ideas are indeed reflected in those that were to follow. What distinguishes his approach from the approach of those of the music appreciation movement is that his work was in the best tradition of scholarship and was not designed or destined to reach a wide audience, whereas the music appreciation movement could be thought of as a propaganda movement within the world of education and it was designed to influence vast numbers of people.

The Music Appreciation Movement

Influences that led to the music appreciation movement: This movement was a product of the times in which it was created. Social and educational changes occurred during the 19th century to such an extent that by the end of the century education was no longer such a haphazard process as it had been previously. Education was provided for all and within the education system music was recognised as a subject that could not be ignored. There were greater opportunities to hear music: this was true of all types of music including orchestral music. The development of the phonograph and the gramophone about this time furthered the dissemination of music. There were, equally, increased opportunities for music making. The development development/

development of choral singing we have already alluded to previously, but there were other opportunities available such as in brass bands (the development of which Mackerness (1964) claims was as much due to the growth of railways in Victorian times as to the technical improvements in the valves).

The movement also came about because of the changes in music. Music was probably less functional by the turn of the century. Church music, dance music and other forms of functional music were supplemented by increasingly large quantities of recreational music: music for its own sake, for listening to and enjoying. However, the music of the times was increasingly more complex. The form was the symphony, and here the length of works tended to be greater, the structure more complex and the instrumentation richer.

There was, in short, an increasing need for systematic instruction in the skills of listening.

The need for systematic instruction in schools: The music appreciation movement, which was a response to this need, can be considered as having its beginnings in this country in the year 1895, although in the United States the movement started just a little earlier. W. S. Pratt, at a meeting of the Musical Association in London, delivered a paper entitled "The Isolation of Music". In this he explained how music appreciation had been included as part of the educational curriculum in some schools in his home country, the United States. For Pratt music was an end in itself, it was not merely a means to an end. However, this latter seems to have been the reason that Matthew Arnold advocated the inclusion of music in the school time-table. In an official report he wrote as inspector of schools to the English Board of Education (1863)*. He expressed the view that it was much easier to, "get entrance to the minds of children to awaken them" by music than by literature.

The basic point made by Pratt, that music is worth listening to and so there should be suitable teaching to encourage and help this, was recognised by the Board of Education by the turn of the century. In the Board's "Instructions to Inspectors" (1901) there is a policy statement that there should be teaching that would help develop pupils' musical faculties so that the, "children might in afterlife be able to appreciate the best music as listeners".

---

*Quoted in Green (1967) via Marven (1908)!

Lavignac in his book "Music and Musicians" (1903) asked the question, 'What is the beautiful in music?'. He clearly recognised the danger that the teaching of music in schools might be so superficial that it would not succeed in giving the listener the ability to understand and enjoy the music to its fullest extent. He points out that,

> "one may up to a certain point love music without understanding it, and even without seeking to understand it. In this case it is merely a gratification of the senses, a social diversion; music then becomes what is called an 'accomplishment', essentially frivolous and superficial."

His argument, which is a perfectly valid one, was that to be able to appreciate music fully, one requires the skills that can only be acquired through sustained systematic study such as professional musicians have engaged in. However, we should note the implication that understanding is as important as enjoyment when listening to music. In this context it is worth quoting what he says about this relationship between the understanding of music and the emotional effects music produces on us.

> "But one cannot understand it /music/ without loving it for the mere analysis of the emotions it arouses in us, and of the procedures by which these emotions are produced, becomes a source of intellectual pleasures, pure and infinite, unknown to those who have not made it the object of special study for whom true music, the music of musicians, will always remain a sealed book."

Whilst it may well be true that the "amateur's" appreciation may be relatively slight because of lack of special study, this is not unique to music: similar statements could be made no matter what the subject. The real danger with music is that the amateur assumes that he listens to music and responds to it in essentially the same way as the professional.

The main implication of writings such as Lavignac's is an important one. It is not that music is too difficult to be taught to the masses. Rather it is that in the teaching of music there should be the clear recognition of the complexities of the subject: hence the teaching should be sufficiently thorough as to ensure that the learners do in fact benefit through learning at least some of the skills of the trained musician.

There continued to be books that instructed in the arts of listening to music such as Kobbe's "How to Appreciate Music" (1906). Surette and Mason's work "The Appreciation of Music" (1907) was hardly more important but is noteworthy as making use of the ideas of Sir Hubert Parry. However, these pale into insignificance when we consider the work and publications of Stewart Macpherson.

Macpherson and the aims of music appreciation: In 1908 Macpherson was instrumental in founding the Music Teachers Association, an association primarily concerned with pedagogical questions. The basic aims of this body, which clearly reflected the views held by Macpherson, were to have trained music teachers in schools and to ensure that in schools there were listening classes for study of appreciation as well as the more traditional singing classes. Macpherson seems to have been greatly influenced by an article in the periodical "The Crucible" written by a Miss Langdale who had just returned from America. In this she described the new musical appreciation movement that was developing in the United States. Scholes (1935) points out the interesting fact that it was within two months of the publication of this article that Macpherson formulated the aims of the Music Teachers Association and included the following:

1. To promote progressive ideas on the teaching of music.
2. To press upon heads of schools to stimulate and maintain amongst teachers a recognition of the important and often overlooked fact that music is a literature which should be taught and studied from that point of view.
3. To insist most strongly, as a preparation for the art of listening, upon the necessity of systematic ear training.
4. To promote class singing.
5. To realise that the amount of time at the disposal of the average boy and girl for the overcoming of the technical difficulties of an instrument is usually insufficient to enable them to cope with works demanding more than quite elementary powers of execution and therefore that it is desirable to bring them into touch with good music, well played and simply commented on by the teacher.

In the same year as the founding of the Music Teachers Association, Macpherson had his first book published. A series of books followed; one of the most important was entitled "The Appreciation or Listening Class". In this book Macpherson expressed his opinion that the main aim of music appreciation in school music teaching was, "to stimulate the child's musical faculties through the hearing of beautiful music in which he could take interest and a delight".

It is appropriate that we should consider a little more closely the implications and consequences of Macpherson's approach to music teaching. The main point that is abundantly clear is that to him music appreciation involved listening to music, and a study of the techniques that he suggests for the teaching of appreciation show that the listening that was important was listening to the form of the music.

The insistence on the study of form resulted partly from the belief that members of the community should be exposed to good music. To Macpherson and to many other musicians of his generation, good music was symphonic music; it was essentially the European music of the 18th and 19th centuries. However, the complexity of this symphonic music was largely a complexity of form and consequently this was an important topic to study.

While we cannot fail to agree that the study of form is desirable and necessary, we might question the importance that Macpherson placed upon it. It is likely that his insistence that this was the really important listening skill is to some extent a backlash against the teaching of earlier days. Too often this had been the teaching of singing. Here if any systematic approach had been used, it would have been the use of the tonic sol-fa. While this was a valuable technique for aural training when properly used, it did nothing to help in listening to the form and structure of great music: it could have been used, and indeed it often was, to teach relatively simple and mediocre songs. It should be noted that much of the teaching using tonic sol-fa by Curwen's disciples fell below the high standards that he himself had set: thus for example, Curwen taught staff notation along with sol-fa after the rudiments of the latter had been grasped, but very few of his successors did.

On the other hand we should note one implication of Macpherson's teachings. It was that the study of music theory or instrumental technique should not be allowed to stand between a child and his enjoyment of music. The study is necessary for the form of the music to be recognised, but appreciation occurs in listening to music as it is performed. And in listening enjoyment may result from success in perceiving the form as well as purely sensuous delight in the sounds themselves.

Macpherson was a person of major importance on the musical scene and there can be no doubt about his single-mindedness in promoting 'music appreciation'. Thus he writes, "the true appreciation of music by the community at large can only come about by means of some kind of systematic systematic/

systematic endeavour, on the part of musicians, to present the best examples of their art in such a way as to make clear to all and sundry that in such things there is really some element of greatness and truth which it is worth troubling about". (The emphasis is Macpherson's own.) (Macpherson 1923).

We can see here something of the idealism of the man. There was the hope that if the layman were induced to understand music of first-rate quality he would be inclined to eschew whatever was inferior. Although this hope may have been naive, this is not to suggest that what MacPherson was doing was any the less valuable. On the contrary with the amount of music being disseminated publicly there was considerable need to help the public develop powers of discrimination. It is noteworthy that MacPherson made recourse to the mass media themselves in making the gramophone a major ally of the music appreciation movement: this was a good choice for it had so many advantages over the classroom piano. One danger in the approach used was that the standards were imposed rather rigidly by the teachers and if the teaching was not very good, the pupils might not be able to form their own enlightened opinions about what was worth while in music such as jazz, dance music and popular music.

Paralleling the hope that the good would drive out the bad, was a hope, an equally naive one, that a better understanding of music will lead to greater enjoyment of the music.

Scholes and the teaching of music appreciation: While MacPherson may be considered the founder of the music appreciation movement in Great Britain, he was not the only person who devoted all his energies to it.
Sir Percy Scholes was almost as important. He did not perform or compose, but restricted his activities to the popularisation of music. As a writer, lecturer and broadcaster he showed a considerable skill in making complicated subjects intelligible to the layman. And unlike some musicologists he was very much alive to developments in non-serious music.

His whole approach to music appreciation was broader than MacPherson's and his book on this subject (Scholes, 1935) was probably the first to treat musical appreciation in terms other than that of a personal system. He not only outlined the history of the movement but he provided a justification of the teaching of musical appreciation and attempted to refute the arguments that had been levelled against its study.

However, although he realised that the study of musical appreciation was more than the study of form, he still took a very limited view on what was implied by the term. This is most clearly seen when we consider how he reacted to the definition of musical appreciation that had been put forward at the 2nd Anglo-American Music Education Conference which was held in 1931.

At this conference, an attempt was made to define musical appreciation, the first time that this had been done at such a 'high-level' conference. Some of the main points made were these.

> "The aims of the study of musical appreciation, as we understand it, are (a) the development of a high degree of sensitiveness to the medium of the art; and (b) an intensive and critical study of the representative examples of admitted masterpieces. This implies, first, the ability to hear music in its own terms, and not in terms of association with other experiences; and secondly, an insight into all those factors which constitute style.
>
> "We believe that all that is here defined as musical appreciation, so far from being in opposition to training in vocal and instrumental performance is an essential complement to all such training."

We can see from this that musical appreciation was one aspect of all music teaching, whether or not it was teaching of listening or of performance. Indeed this distinction is seen as being to some extent an artificial one. One might argue that what is being advocated is some study of 'music appreciation' as a part of training in performance (no matter whether performance in singing or on an instrument) as performance skills should necessarily include appreciation skills.

Scholes was bitterly opposed to the conference definition of musical appreciation and in his book (1935) he put forward a set of resolutions that he believed should replace those that were accepted at that 1931 conference. He claimed that, "in the general term musical appreciation is included in whatever brings to the notice of the pupils the listening side of the art, as distinct from the side of performance". (Scholes, 1935). In another context he wrote that the term 'music appreciation' is,

> "the usual time-table and text-book name for a form of educational training designed to cultivate in the pupil an ability to listen to seriously conceived music without bewilderment and to hear with pleasure music of different periods and schools and varying degrees of complexity."

Here we can see that Scholes keeps the distinction between the performance of music and listening to music and that to him appreciation was to be associated with listening.

Looking back on the disagreement between Scholes and the authors of the statement on musical appreciation produced at the Anglo-American Music Educators Conference, it is fair question to ask whether the differences were in fact more apparent than real. If one accepts that the performer is constantly monitoring his performance, and all surely accept that this kind of feedback does occur, then this implies that for a successful performance the performer must listen to (or perceive consciously or unconsciously) his own performance and evaluate it in the light of his knowledge of the principles that would be applied by those who are listening to him. What seems really to be the point at issue was not what constituted the necessary skills, but the means by which they could be inculcated in possibly reluctant learners. MacPherson and Scholes argued that these skills were listening skills and that it was therefore most appropriate to teach them through getting pupils to listen preferably to the best examples of available music - and this usually meant making use of recordings. The Americans on the other hand argued that all music activities involve to a lesser or greater extent listening skills and hence music appreciation can and should be taught using a variety of different situations and techniques. Such learning would be more effective since an active approach was more frequently required.

In conclusion it is important to stress that both MacPherson and Scholes were passionately interested in the educational process. Not only did they outline <u>what</u> was involved in music appreciation, but more importantly, they devoted their lives to showing <u>how</u> music appreciation could be brought about in the masses.

Music Educators and Aestheticians Views on Music Appreciation

<u>Appreciation as enjoying, understanding and evaluating music</u>: This section deals with the ideas about music appreciation put forward in theoretical writings by music educators, aestheticians and to a lesser extent, psychologists. In so far as definitions or hard statements about music appreciation are made in the writings considered in this section, they tend tend/

tend to be "stipulative definitions" of music appreciation. They indicate for each writer what he believes to be the skills, qualities, etc. that can most usefully be subsumed under the term 'musical appreciation'. The differences between the stipulations of different writers reflect their different priorities in music education and their different ideas about the nature and function of music.

There are two basic meanings of the word "appreciation" in common usage - though each of these has several related aspects:

1. The understanding and evaluation of merit.

2. An intellectual or emotional satisfaction.

Buck (1943), writing for musicians, emphasises the former meaning, though it must be recognised that understanding music is not necessarily the same as ability to evaluate its merit. However, understanding may be a necessary, if not a sufficient, condition for proper evaluation. Even so, it is conceivable that some people can evaluate the merit of music with some measure of success without being able to state explicitly their reasons for their judgements. Yet their intuitive grasp of the qualities, that make for greatness would hardly be described as 'understanding' simply because it is not fully conscious. It should be added that Buck does also state, almost as an afterthought, that appreciation should include liking although, "liking does not constitute appreciation".

This stance of Bucks is like that of Brocklehurst, who states that, "the primary purpose of musical appreciation is to inculcate a love and understanding of good music" (Brocklehurst, 1962). Lovelock (1965) uses almost identical words to describe appreciation.

With these writers, there is one problem which cannot be resolved simply; what is 'good' or 'of merit'? Are there absolute standards or does 'good' simply mean "in accord with what reputed experts call 'good'"? Evaluation of merit suffers from precisely the same problem. Evaluation implies comparison against a norm to determine goodness or merit. Is the norm socially defined? If it is, then appreciation cannot be unambiguously defined or described unless social norms for goodness of music are unambiguously agreed. They are not. If they were, this review would not be necessary!

Intellectual aspects of music appreciation: Kate Hevner Mueller (1956) is firmly of the opinion that what is required here, "is first of all the engaging of the cerebral activity with the sound stimuli, the organising of these sensations into perceptions and the growth of these perceived and identified units into the larger and more complex units we call concepts". Although she continues that, "The ease and facility with which the listener can develop these perceptions together with the resultant pleasure is the essence of music appreciation". However, she immediately adds, "The intellectual character of the process is inescapable". Elsewhere in the same article she again emphasises her belief that basically "the teacher and learner are concerned with the intellectual process in appreciation". This viewpoint recognises that music can have a profound effect upon us but nonetheless Mueller argues forcibly that to appreciate the music we must perceive and understand the cause of the effect. This suggests that to listen appreciatively, one must be able to hear in the music the techniques used by the composer, no matter whether these are specific to himself, and which thereby determine his style, or whether they are the more commonly used 'rules' or conventions for the composition of music.

At this stage it is worth referring to one line of study which has developed independently of any concerned with music. This is the work on "auding" which has developed out of the original ideas of Caffrey (1955). Just as there is a distinction between 'hearing' and 'listening', so there is a higher level distinction between 'listening' and 'auding'. 'Hearing' is very much a passive activity: 'listening' implies paying attention to the details, but there is little that is observable in the listener, there are no obvious responses: 'auding' is purposeful and implies associative listening, it is more detailed, creative and active. Furness (1957) and Russels (1959) following up Caffrey's work suggest that in teaching there must be a change from 'listening' to 'auding'. Applied to music, this might imply that attention must be directed in such a way as will lead to perception of what is musically significant - a point made earlier on normal language usage by Lowery (1943) in discussing the distinction between 'hearing' and 'listening'. It might well, it is suggested, include attention to the form of the music. One crucial point underpinning the whole concept of 'auding' is that what one has to listen to and what responses have to be made are known. Now this may be the case in English teaching, whence 'auding' developed; it is not necessarily the case in music teaching. To allow auding to become a relevant aspect of music teaching, the objectives objectives/

objectives of music teaching would need to be specified in some detail. Were this done, then 'auding' might equate to appreciation.

Appreciation as a satisfying experience: Wallach (1959) in a thought-provoking article does not stress the cognitive side. In discussing the nature of aesthetic experience he takes as his starting point what he considers to be the criteria of a work of art. These are:

1. it must be an organisation of information,
2. it must serve to alter a persons motivational state,
3. this change must be in a way sought by the individual.

Wallach considers the problem of aesthetic experience by asking what effect a work of art has on an individual rather than by asking what an individual does in appreciating a work of art. If we shift Wallach's emphasis, then, "altering of a person's motivational state in a way sought by the individual" could be interpreted as the appreciation of the work of art. We might note that 'appreciation', as defined here, does not necessarily equate to 'liking'. Some people get a satisfaction from music which they consider sad and they may actively take steps to listen to the music simply because of its nostalgic effect. The experience is therefore not pure pleasure. Again, many aestheticians believe that the aesthetic experience is a richer, more spiritual, more valuable experience than mere enjoyment, though they do not succeed in explaining, in terms intelligible to the psychologist, the real nature of this experience. Mace (1951) writes, "I would maintain that without some experience of the transcendental quality of greatness of music, we are not valuing or appreciating it at its true worth". But this does not indicate to those who do not enjoy the transcendental experience of music what it is they miss, or how they might find it. Even Munro, whose output is voluminous and prestigious, is too cautious to attempt to describe specifically the nature of aesthetic experience. He does, however, share Wallach's view that this experience is a central issue when considering works of art. To him the general term 'Art' includes, "all the types of skill and product which commonly have as a function the arousal of some kind of aesthetic experience". (Munro, 1963)

One consequence of Wallach's approach is that it avoids the difficulty of deciding what is 'good'. Whether a work is a work of art or not is subjectively determined by its effect. Although this is an elegant solution solution/

solution to a difficult problem, it is not one that has commonly been accepted.

Relationship between cognitive and affective aspects of appreciation: We have discussed two aspects of appreciation, the intellectual exercise of understanding the music and the feeling of satisfaction that the music evokes. There is no reason why appreciation need be restricted to only one or the other. But if both are reasonable, it is important to ask what relation between them exists. The simplest, which seems implicit in some writings (often through what is omitted), is that a person appreciates music either if he understood it or if it provided a satisfactory experience, but it doesn't matter which alternative. A more elegant and eminently meaningful, yet totally different, relationship is implied by Buck (1943). "Art", he claims (and he includes music here) "must reach the Feelings via the Understanding". Thus the crux is the subjective experience but this, in real appreciation, results from the understanding of the music. A satisfactory experience which is not the result of understanding is *not* appreciation, though there may be sheer enjoyment of the sensuous quality of music. Similarly understanding as mere intellectual exercise is not appreciation. This approach is shared by other writers, yet few of them ask how many people are capable of appreciating music in this sense.

Objectives and aims of music teaching: An alternative to attempting to define or describe appreciation is to list the aims or objectives of music teaching, since this avoids the need to define, or even describe in a general way, what music appreciation is. This is not because 'music appreciation' is necessarily considered an inappropriate concept: there are writers who do use the term in a most general way, but who do not attempt its definition but merely describe what should be taught. Nonetheless it is hard to avoid the conclusion that for many writers the term 'music appreciation' has little real relevance.

Some attempts have been made to provide taxonomies of objectives. Thus Colwell, in his splendid book (Colwell, 1970) provides a fairly full description of Bloom's taxonomy* and illustrates its use with musical material. However, he does find there are difficulties in this exercise exercise/

---

*Bloom's taxonomy of objectives in the cognitive domain and the affective domain and Simpson's parallel taxonomy of objectives in the psychomotor domain. (Bloom, B., ed., 1956; Krathwohl, D. R. et al, 1964; Simpson, E., 1966)

exercise, particularly with the psychomotor domain. Green (1967) also attempted to use Bloom's taxonomy for cognitive and affective domains. Again there is evidence that the underlying classification system does not suit music too well. Possibly each academic subject ought to have its own taxonomy.

Unfortunately, most music educators do not employ techniques anything like as rigorous as Bloom's taxonomy when they describe their own aims and objectives. Consequently their statements are much less precise and difficult to compare. This is especially so since in many instances how a topic should be taught becomes confused with what should be taught. No doubt this is quite understandable: since inappropriate teaching may well prevent the true goals being achieved and such teaching was not uncommon especially in the 1920's and 1930's.*

The most detailed analyses of the aims, objectives (and sometimes methods) of music teaching are to be found in the voluminous American literature, of which the most important single accessible document is the 57th N.S.S.E. Yearbook "Basic Concepts in Music Education" (Henry, N. B. ed., 1958). This is now updated by Schneider's work (1969). In this country Green's review (1967) is the most comprehensive. A sample from the works of music educators provides an indication of the wide range of topics which may be covered.

Chavez (1961) claims that the aims of teaching for music appreciation are twofold: i) to develop the innate musical sense and ii) to make provision for increasing the technical means of understanding the achievement of a work. Hunt (1957) has as his first aim, intelligent listening for form in music. Shaw (1961) on the other hand believes that form cannot be heard by the ear and therefore should not be the basis of music appreciation training.

Hunt also advocates teaching that will help in the discrimination of good and bad music so that good music will lead to enjoyment and so fill the mind that it keeps out the bad. This development of good taste is shared by other writers such as Mainwaring (1941) for whom music appreciation involves, "developed preference for those works normally accepted as worthwhile and 'good'". Maine (1935) also seeks to make the discrimination between 'good' 'good'/

---

*e.g. Vide Colwell p.80. Also Scholes controversy over the aim of the music appreciation movement stemmed from questions of how to teach. Scholes' aims and his own teaching may have been splendid. The teaching of many of his followers was admittedly often too mechanical and failed to achieve the desired ends. (Vide Mackerness, 1964, p.262.)

'good' and 'bad' music a central feature of music teaching and he indicates how this is to be achieved. It can be successfully done through the learning of songs and the study of theory. His optimism about human nature and the transfer of training is such (it would seem) that he would require only the "occasional" lesson on how to estimate the quality of pieces of music heard by his students.

It is interesting to note how the aims of music appreciation teaching overlap with the aims of social education. Brocklehurst makes the point that appreciation for the beauty and worth of masterpieces may help in the fight against growing commercialism. For Hunt a proper appreciation of music leads to good neighbourliness through, for example, a discriminating use of radio. Mursell (1951), in similar vein, suggests that there should be concern about 'human values': he is critical of the traditional music appreciation lesson as being too limited in what it can achieve.

Brocklehurst's (1962) aims are reasonably specific. Included are reading and memorising melodies, score reading, the study of form, and instrumental spotting. Manning (1946) would require a study of theory and of form, studies of particular works and a biographical study of some of the major musical figures. More recently Dwyer (1967) suggests the main topics should be colour, texture and form. Lists of topics such as these cannot do full justice to their authors. Most describe how they would teach so as to fulfil their aims and they make positive constructive suggestions. Despite this the evidence is clear enough that there are some fundamental disagreements. Even where different authors views are complementary, it is difficult to try to derive their priorities.

Appreciation of performance: One possible aspect of music appreciation is almost totally neglected in the material reviewed above. Even a writer of the calibre of Munro (1963) - though he is primarily concerned with the visual arts - is content to consider two aspects in relation to the arts, creation and appreciation. Yet there is the difficulty that in music there is a middle-man, the performer. Thus the listener has to attend both to the performance as such and through this to the original composition if he is to appreciate what he hears.

It is impossible to divorce these totally, as music was composed to be performed and, indeed, music may possibly only exist in performance. Yet it is feasible to try to consider them separately. Within the admittedly limited field of 'classical music', the composition is the more fundamental fundamental/

fundamental and the performance is geared to the written score and to the composer's intentions. The appropriateness of performance is judged by how successfully it allows us to hear what the composer wrote. It is the very richness of much of our music that allows several different performers to give their own interpretations, all of which would be judged 'good' or even 'excellent', for they each emphasise one aspect or another of the original work. Despite this it must be admitted that the differences between acceptable performances are relatively slight. This is not so in jazz, or the cadenzas of classical concerti, where the notes played are of secondary importance to the effect desired by the performer at the time.

The consequence of this is that it is quite appropriate to posit the belief that with most orchestral music, appreciation should include appreciation of the performance of the music as well as appreciation of the music as written.

Appreciation as understanding the language of music: The various approaches discussed all seem rather limited and this may be because they are too eclectic and lack of any substantial theoretical framework. One attempted way of providing a framework is to draw the analogy between music and the written word. Thus when we listen to a play, we attend to the words so as to obtain the meaning from them. This we can do, if we have had sufficient experience of the language, because it has a vocabulary and a grammar with which we are familiar and with which we can cope. But just as the English language has a vocabulary of words so music has a vocabulary of sounds: just as there are 'rules' and conventions about how words may be strung together, a grammar, so there are 'rules' and conventions about how the sounds of music may be put into sequence. Music has its grammar: and just as there are an infinite number of ways of using the English language, all of which are meaningful, so it is argued there is an infinite number of ways of using the language of music so that it will be meaningful. This general thesis that music is a language and that musical compositions have a meaning seems to be widely accepted by philosophers and aestheticians. Even the man-in-the-street accepts this idea when talking of music as having 'significance', but he does not stop to ask what it signifies: he is not concerned with what music means because he has not realised that it could mean anything. However, if we think about appreciation of music we are forced to consider what the meaning of music may be, if it has a meaning, for if we fail to understand the language of music when we hear a piece played, we can hardly be said to have appreciated to the full. Certainly

Certainly/

Certainly music does not have a symbolic meaning, it has no literal and correct translation. If we accept Ogden and Richards (1923) distinction between the symbolic and emotive uses of language, then it is agreed that the language of music is emotive rather than symbolic. Cherry (1966) points out, discussing Ogden and Richards distinction, that, "words in poetry are selected not for their 'correctness' but to achieve certain results, to produce certain effects upon the reader's mind", and equivalent statements could be made about any art form, not merely poetry. The meaning in a work of art is to be found in its effect; the question of correctness does not arise. Cherry concludes that, "these two 'polar extremes' of the whole sphere of language, the symbolic and emotive, we may call the scientific and the aesthetic".

However, it is at this stage that disagreement comes in since our philosophers while accepting this general point still fall into two camps when trying to unravel the nature of this aesthetic extreme of language. On the one hand there is the 'formalist' point of view whose advocates, such as Pratt and Langer and Hanslick, hold that music does not arouse emotions: rather they argue that there is in music a "tonal analogue of emotive life". i.e. the music may illuminate the nature of emotion yet musical experience is not the same as life emotions. "Music", according to Pratt (1931) "sounds the way emotions feel." And, according to Langer (1957), "music is a total analogue of emotive life." Yet the recognition of this similarity between the <u>forms</u> of music and the <u>forms</u> of emotion should evoke only pleasurable feeling, not emotion. A clear distinction is made by those who support this limited referential position between emotion and feeling - a distinction that is possibly overdone in the light of psychologists' lack of agreement over the nature of 'emotion'. This viewpoint stresses the intellectual tasks of appreciation of music: the intense pleasurable feelings induced by music follow from an awareness of the rightness of the tonal design. This formalist approach seems to have relatively few advocates in the present time though some such as Sherburne (1966) accept it in a modified form.

At the other end of the spectrum we have the 'expressionist' or 'absolutist' point. Whilst the inspiration for those who support this kind of theory comes from Croce and Collingwood, the most recent and ablest proponents of this approach are L. B. Meyer (1956) and Deryck Cooke (1959) whose books have received wide acclaim. They would deny that Art is life-oriented, revelatory, pulsing with human significance and insight into into/

into reality. In so far as music has a meaning it is a meaning unique to music - a meaning 'sui generis'. Meyer argues that we should focus on the "embodied meaning" in music, and here he implies that one part of a piece of music has meaning only in relation to the other parts of the same composition. And the parts are so arranged that they will produce in the listener strong feelings or emotions. Thus Laszlo (1967) points out that Beethoven, Brahms, Schumann, Wagner and Lisst explicitly championed the idea that Art is "the spontaneous overflow of powerful feelings". Self-expression and the expression of powerful feelings may not need artistic form, but this is not to say that they cannot or should not be embodied in artistic form, and it would appear that many of the greatest of composers have felt a need to express themselves in the music of their compositions. While some authors, such as Martin (1967), claim that the feelings evoked by music can be highly intense and yet not necessarily like any others, and would reject the idea that they can be described by reference to the so-called life emotions, not all expressionists would concur.

For Cooke (op cit) the meaning of music resides in the idea that the composer's emotions are transferred to the listener via the work, though Meyer holds that the emotional states which the composer transmits are less humanly specific than Cooke would have us believe. Storr (1970) points out that a great composer may take us beyond our normal experience: he "is not simply a great expositor of what we all feel anyway. He is actually showing us something completely new. . . . . Most musicians seem to agree that the last quartets of Beethoven are indeed in a special category. They do not represent emotions which we have all experienced, but feelings or states of mind to which most of us have had no access until Beethoven revealed them to us." Laszlo does not believe that the listener should feel the same emotion as originally stirred the composer (as Cooke seems to imply).

> "The emotions which inspired the creation of any piece of music are part of its history; while the emotions which inspire its actual interpretations are part of its enjoyment. . . . . Music is the expression of emotions, and it matters little whether the emotions are those of its composer or those of a qualified interpreter."

However, he does add that the emotions of the composer and the performer will be of the same kind. Consequently, "musical enjoyment is communicated communicated/

communicated to the listener because he 'overhears' the interpreter express himself in music, and comes to feel and understand the same kind of feelings which have originally inspired the work". Yet this still leaves little room for the listener's interpretation which may be unrelated to the composer's or the performer's. Yet why should such an interpretation not be just as valid?

Information theory - a link with empirical studies: Another totally different framework may prove productive for explaining what happens in music and is based on "information theory". This has an added advantage that it does seem to provide useful links between some of the philosophical ideas, particularly those of Meyer (e.g. see Sharpe, 1971; Meyer, 1957). The earliest systematic application of information theory to music is that of Moles dating from the mid 1950's (Moles, 1966). Possibly the most interesting studies are comparative studies of the degree of redundancy in different styles (e.g. Youngblood, 1960; Cohen, 1962; Wober, 1968).
Of interest to us is that the degree of redundancy is a measure of the complexity of a work and so the task of appreciation may well be to recognise the redundancy where it exists. Where this cannot be done, the work becomes a meaningless combination without shape or form to the listener. The information theory approach parallels the viewpoint which stresses a study of form and the technical aspects of composition, but goes beyond it in providing a means of quantifying some of the most elusive variables since the laws or conventions of composition are treated as analogies to the grammar of music. Information theory links also with severely practical work. The interpretation of Berelynes work on collative stimulus properties (1960) is clearly 'information - theoretic' in nature even though it does not formally make use of pure information theory.

However, whilst information theory may provide a tool for investigating the nature of music and how it is heard, it does not, at the present time, provide any help in deciding the more fundamental questions as to what should be included in investigations concerning music appreciation.

Practical Investigations into the Psychology of Music

Studies of consonance/dissonance: The practical investigations carried out in the psychology of music could be expected to throw some light on the the/

the structure of music abilities or interests or appreciation, and thus help in our task of clarifying the concept of 'music appreciation'. What is required here is not so much a detailed critique of individual studies as a broad look at the various areas of study, though there may well be the need to look more closely at some particular studies within areas of real relevance.

There are many different lines that have led to fruitful investigations of music. However many of these could loosely be described as dealing with the various responses elicited by varying musical stimuli. In this review we will focus first upon the kinds of study that have centered on the varying musical stimuli. Thereafter studies more concerned with the varying responses will claim our attention.

One line of investigation which still continues to be followed after more than half a century's work is concerned with which sounds are consonant/dissonant or pleasing/displeasing. The work of Valentine into the degrees of consonance of different chords typifies the work in this field. In his book (Valentine, 1962) he reviews quite thoroughly many different investigations. The same general kind of study has been undertaken more recently by Berelyne (1960). However he employs techniques which are more rigorous than those of earlier workers and he also has his stimuli judged on several different rating scales, not merely on pleasant - unpleasant.

One important characteristic of this work is that the stimuli to which the responses must be made are very simple, such as a chord of two notes. Berelyne in particular believes that experimental aesthetics must build from the bottom up and that it is necessary to take this 'atomic' view: he would argue that music and its effects can only be understood when the principles involved in listening to music have been clearly elucidated by careful studies of the many elemental aspects of music. This approach is slightly reminiscent of that adopted by Birkhoff (1933) or Eysenck (1941) when considering the appeal of different simple visual stimuli. However, just as this approach has not proved too successful with visual materials, so it can be doubted just how fruitful it will be with aural material. Studies on this general area may well provide an interesting contribution to the study of perception, but it is debatable how relevant they are for music.

It might be expected that there should be some relationships between musical tastes or preferences and liking or disliking particular chords. But if there is, it is distant and tenuous. One difference between music and isolated chords is particularly important. With studies of consonance/

consonance/dissonance, the fact that music exists in time is very largely ignored. As Gardner and Pickford have shown (1943, 1944) in an elegant series of experiments, the same chord in different settings will be perceived in different ways - a finding which incidentally is necessary for any initial understanding of how cadences can achieve their effect. This suggests that, with music, it is the judgement of whole 'gestalten' rather than a conscious judgement of its elements which has significance. Here the organisation of the several parts is of paramount importance and listeners to music are almost certainly not aware of their perceptual processes. The investigators whose work we have been considering required consciously determined responses to possibly unrealistically simple stimuli from their subjects.

Studies of consonance/dissonance do not discriminate different kinds of perception in such a way as would indicate what is the more appropriate (appreciative) form of musical perception. Yet the appreciative listener might be expected to hear in a different way from the unappreciative listener. Although in most studies individual differences are noted, but these,by the nature of the investigations, are more often quantitative than qualitative: the real focus is on the generality of phenomena observed. There are many possible topics in the perception of music. Early work such as that of Ortman (1926) or Guildford and Hilton (1933), was often and necessarily relatively unsophisticated as compared to modern studies such as those of Hickman (1969) or Thackray (1965) or even Frances (1958). And many studies seem to deal with relatively trivial points. Possibly some of the most solid work in the area was done by Vernon (1931, 1933). However, the focus of these investigations, and of theories such as Ehrenzweig's (1967) on 'unconscious scanning', are concerned with how we hear music. Now while 'hearing' and 'listening' are obviously related, they are not the same. If we accept that musical appreciation is primarily concerned with listening skills, it may be that the work we have been discussing has but limited relevance.

Studies using the semantic differential: By making use of Osgood's 'semantic differential' technique (Osgood et al, 1957) studies in the area of the pleasingness or consonance of musical stimuli have recently been 'broadened out' and given a framework.

The semantic space of Osgood's has three dimensions; evaluation, activity and potency: of these evaluation is the most significant. In the factor analytic foundation of the technique, the rating scales which are usually found to have the highest loadings on evaluation include 'good-bad'

'good-bad'/

'good-bad' and 'pleasant-unpleasant'. The semantic differential therefore provides a tool for investigations in which data from ratings can be interpreted. Furthermore if, in music appreciation, evaluation is important, then not only are judgements of 'goodness' or 'pleasantness' necessary, so is some systematic way of handling the several ratings that together constitute evaluation.

Apart from its relevance, the technique is particularly valuable because it is exceedingly versatile. It can cope equally well with ratings of complete musical works (or meaningful extracts from them) or with single notes or chords. Unfortunately, this technique has been little used with music and the few exceptions (e.g. Edmonston, 1966; Nordenstreng, 1968; Swanwick, 1973) are trivial applications which do little more than validate the technique.

Studies of the character of music: Still focusing on the different type of musical stimuli are studies of the 'character' of music. Heinlein (1928) and Hevner (1935a) concentrated on differences between music in the major and minor modes. Gundlach (1935) and Hevner (1936, 1937a, 1938) broadened out this line of investigation considering other variables such as pitch and tempo. However, possibly the most complete study of this type was by Gatewood (1927). These early studies were probably too simplistic and have come in for criticism on this score (e.g. Zinc, 1960) though there are early, but highly penetrating critiques such as Roberts' on the nature of 'key quality'. (Roberts, 1930)

One of the greatest problems was ensuring the lack of a sufficiently large and varied selection of musical examples. Possibly as a consequence, the analysis failed to consider the complex interactions between various 'cues' such as tempo, timbre, etc.

Since these studies have inadequacies and since the focus is on the nature of the music itself and variations between different subjects' responses tend to be ignored, they are relatively unimportant when considering the nature of music appreciation. They would only be of importance if appreciation included the ability to describe the character of music or alternatively the composer's intentions as to what a particular piece of music should convey. However, we are not convinced that a composer's intentions can be clearly expressed, other than in his music. Equally there is often considerable doubt as to what the character of a piece of music is, e.g. different 'experts' disagree and there is no guidance from the composer.

Studies of musical taste: In contrast to the studies referred to above, studies about musical preferences and tastes are very much concerned with both the nature of the music and the listeners response. This is true no matter whether musical extracts have to be judged (e.g. Baumann, 1960; Hunkin, 1957; Rogers, 1956) or less reliable questionnaire techniques are employed.

It is noteworthy that studies of taste tend to take account of sociological and psychological variables, such as social class or peer group influences. This takes the analysis to a deeper level than in the studies discussed earlier. Whilst it would be inappropriate to attempt to review the literature concerned with musical taste, it may be appropriate to point out one weakness of many studies. Too often musical tastes are categorised using systems which are 'ad hoc' or chosen on purely musical grounds with little or no consideration given to their validation.

Brief comments on the relevance of studies which focus on the music itself: Of these four areas of research we have noted, two, we have suggested, have little relevance for music appreciation. Studies of the consonance/dissonance of chords or of the 'character' of pieces of music have tended to focus too exclusively on the 'musical stimuli'. However, studies of musical taste and of the 'evaluation' of music by means of the semantic differential are, we believe, indirectly concerned with "appreciation" in that they are about the different extent to which listeners respond to different kinds of music and they require the listener to make some judgement of music.

Emphasis on the different responses to music, rather than the differences in the music itself, provide the focus for other types of investigation in the psychology of music.

Effect of training and repetition on musical ability: The effect of training on singing and executant skills has been investigated by a number of workers and quite adequately reviewed in Shuter (1968). Such musical skills are performing skills rather than listening skills and so they could, quite legitimately be considered to overlap with appreciation to only a slight extent. It is conceivable that research could be organised to see if performance after some course of training reveals a greater appreciation of the work performed than a performance of the same work before the course. Studies of the effect of training are not typically of this type. Related to this are studies which reveal the extent to which performance on music ability tests is influenced by familiarity (e.g. Wing, 1948) or by practice and coaching (e.g. Drake, 1945; Gordon, 1961).

Effect of past experience on listening: The effects on the listener of repetition of music, increasing familiarity with music, or training in music provide another area of study. Studies in this area date from Max Meyer's studies into the effects of increasing familiarity with quarter tone music (1903). By and large such studies suggest that familiarity leads to liking and appreciation (e.g. Ernestion, 1961; Birch, 1962; Trawsdale, 1968). Edmonston (1969) in a parallel study considering taste, found that evaluative responses are positively related to familiarity rather than to formal music training. There are those who take the opposite point of view (e.g. Schneider and Cady, 1967). In a different vein, but just as important, is the finding of Marill and Mull (1942) that the point of a composition which arouses a listener's emotional response is related to his familiarity with the work - a finding which could be interpreted as revealing one source of developing musical appreciation.

The types of study described above have mainly been concerned with quantitative changes in the responses under investigation which may result from familiarity, training etc. However, since the turn of the century there has been considerable study of the different effects that music has and the different kinds of response which it evokes.

Different kinds of response to music: The qualitative differences of response (as we have seen in an earlier section of this chapter) have been one of the main topics of concern to musicians and music educators. It is not surprising that it has also been the subject of much high quality practical investigation by psychologists and others. McLaughlin (1970) reviews the physical/physiological effects of music, but the forms of cognitive/emotional response are of more interest. In the classic work they carried out in the period 1910 - 1930 Myers (1914, 1922), Bulloch and Valentine (1919, 1962) found it profitable to employ a system of categorising responses to visual and auditory stimuli, whether simple (such as simple chords) or complex (such as pieces of music). In this there were four categories. Valentine (1962) stresses that the different judgements accorded to music (or other stimuli) are more reflections of the attitudes or personalities of those making them than of the characteristics of the original art works. A similar point is made by Sopchak (1955) who states in an article dealing with individual response to music, "emotional responses are not due to the music per se". The four kinds of judgement judgement/

judgement are:

1. the objective type
2. the subjective type
3. the character type
4. the associative type.

It should be noted that this approach is generally accepted, although subsequent writers have modified the system more or less. Very similar to the Myers classification is that of Yingling (1962). Rather more elaborate, yet clearly sharing the same origins, is Vernon's (1933). Thus where Myers has one category for associative responses, Vernon has two or three; (i) where attention wanders but the trains of ideas are triggered off by the musical stimuli; (ii) where there is one emotional reaction in which visual images keep in step with the music, and (iii) synaesthesia.

In an attempt at a broad review of psychological studies of music, such approaches to response to music are intrinsically more valuable than (say) Schoens (1928b) where there is a deliberate (and admittedly quite legitimate) narrowing of the basis of the investigations. Taylor and Paperte (1958) attempt a wide ranging review, but the combination of their psychoanalytic viewpoint together with their poor description of the effects of music, seriously limit the value of their paper.

Synaesthesia: Growing out of the study of different response to music has been a study of synaesthesia with music. The origins of such work date from Galton's (1883) classic study of imagery. Myers (1911) and Agnew (1922a, 1922b) made intensive studies as did Vernon in his 'musical period'. (Vernon, 1930.) Vernon, ever abreast of developments in psychology, is also joint author of a more recent paper (Choudhury and Vernon, 1964) which was published just when such 'subjective' topics started to become psychologically respectable again. (See also, e.g., Holt, 1964.) However, in recent times the most notable figure working in the area of synaesthesia has been McKellar (see, e.g., McKellar, 1965, 1968) though such studies have not been especially concerned with music as the stimulus.

Brief comments on studies of the effect of music: Studies of responses to music must undoubtedly have a considerable bearing on appreciation. Thus it is quite legitimate to ask whether (say) the existence of associative responses to music (and we include here synaesthesia) is a valid index of

of/

of appreciation. Now it is quite clear from all the evidence that associations of some sort are, more often than not, a normal concomitant of listening to music. Yet as Valentine comments (1960), "when listening to music a good many people enjoy 'themselves' rather than enjoy merely the music, including under 'themselves' their ideas, imaginings, reminiscences and so forth". Valentine implies that enjoying oneself, rather than the music, is not appreciation. Vernon's evidence supports Valentine's contention (Vernon, 1930b). He points out; (i) that highly skilled musicians have little auditory imagery which really helps the enjoyment of the music; and (ii) the amount of visualisation increases in the later part of a concert as fatigue increases. On the other hand, it is perfectly reasonable to argue that if music evokes a response that would not otherwise have been evoked and if that response satisfies the listener - a purely subjective criterion - then the effect of the music has been beneficial and the listener has appreciated the music*. This is, of course, very nearly the same point that Wallach makes.

It is possibly appropriate to reiterate at this point that the attempt to identify what it is legitimate to call musical appreciation cannot lead us to a logically "correct solution" to the problem, it can merely lead us to a definition or description of music appreciation. That this may differ from other definitions is essentially unimportant so long as the definition is clear, though ideally it should have much in common with other equivalent statements. Potentially the most valuable function of a review, such as this, of the practical investigations carried out in the psychology of music is to highlight topics which have been overlooked in the non-practical, non-psychological works.

It should be noted that while psychological studies of music have been the subject matter of this section, one type of study has been left out. Studies based on factor analysis merit a separate section. This encompasses much of the work into musical abilities based on test results. However, discussion of musical abilities and their relation to music appreciation is also to be found in Chapter 3.

---

*We believe that to appreciate music is worth while musical activity: it would be naive to believe that all worth while musical activity isnecessarily music appreciation. Our statement in the text is not a logical argument.

Factor Analytic Studies of Music

Studies based on specially devised experiments: Many studies on musical topics have used factor analysis, because this tecnhique allows large amounts of data to be analysed by rigorous techniques so as to give relatively simple and intelligible sets of results. Although in many instances they have been based on results of testing music abilities (e.g. Wing, 1941, or McLeish, 1950) there are factor analytic investigations which have been concerned with different aspects of music, such as musical taste (e.g. Henkin, 1955, 1957). Factor analysis has been employed in other aesthetic areas, such as the study of works of art, and there are studies which use materials from several areas.

With music, results of music ability tests have been more intensively analysed than measures of response to music, whereas with the visual arts response rather than basic abilities has been more thoroughly investigated. In this section we do not restrict ourselves to studies which are specifically about music but include reference to any which may be illuminative.

Eysenck (1940, 1941) using pictorial material, showed there were two factors in aesthetic judgements: first, a general factor which he calls 'T', the factor of good Taste; and second, a bipolar factor called 'K' related to preference for brightness-restraint of colour, but which also tended to contrast formal with representational art. This bipolar factor was found to be closely related to personality factors (see also Chapter 4). Burt, in the late 1930's in another study, the details of which remain unpublished, but which is referred to in Valentine (1962) found evidence for a 'moderately large' general factor for the appreciation of music, painting and literature. It is suggested that this depends on the appreciation of significant form involving the apprehension of the relations between various elements.

Peel (1945) in a study which focused attention on, "the qualities of the work of art rather than the temperamental qualities of the person" produced results that were complementary to the earlier researches. Pickford (1948), in a study not dissimilar to Eysenck's or Peel's, studied, "the problems of emotional expression /that/ had been neglected by Peel and Eysenck". He again found two factors, a general one and a bipolar one. What is particularly interesting is that Pickford carried out two parallel studies studies/

studies one using pictures, but the other using music. The general factor, which Pickford calls the Aesthetic Factor, has as its principal qualities Emotional Expression (defined as, "genuine expression of feeling or emotion, whether pleasant or unpleasant") and Intellectual Appeal and Formality. This general factor:

> "combines genuineness of emotional expression with harmony of form and design, and unites the intellectual and emotional qualities of art. It suggests that this combination is in fact the essence of art, and it strongly supports the hypothesis that the essential attributes of artistic expression and appreciation are (a) harmonious integration of emotional tendencies and harmony of visual, auditory or other aspects of form and design."

The bipolar factor which Pickford calls the Technical Factor contrasts rhythm, sentimentality and representational accuracy with atmospheric effect, symbolic expression, tension and brilliance of colouring. "It shows the subjects' responses to different methods of expressing the essential unity of emotional qualities and design."

Burt's, Eysenck's, Peel's and Pickford's studies agree reasonably well with each other. Certainly they are in broad agreement on one point, that the factors apply to music, to painting and the arts in general. The evidence of Guildford (1957) runs counter to this. He finds separate factors for different arts. The difference here may,however, be more apparent than real since Guildford factors are, we believe, more ability factors than appreciation factors.

The factor analytic studies which we have described were based on tightly controlled experimental procedures in laboratory conditions and were largely based on the subjects' ratings of works of art. They suggest that there are one or more factors which could quite properly be called 'music appreciation' factors. Studies based on the administration of tests of musical appreciation or ability, do not show this so clearly, possibly because the tests do not provide reasonably pure measures of the factors found in the experimental work.

Studies based on standardised test results:* In his early work Wing (1941) used only the seven tests that constitute his 'Tests of Musical Musical/

*Results from many tests are discussed in this section. They tend to be widely used ones such as are discussed in Lehman (1968). A detailed discussion of tests is the subject matter of Chapter 3.

Musical Intelligence' and his factorisation (by means of 'Burt's weighted summation') produced three factors, one a general one, and two bipolar ones. The more important of the bipolar ones, which accounts for some 13.4% of the variance, he called Analytic v Synthetic. What is interesting about this factor is that it contrasts ability on the three tests, Chords, Pitch and Memory, which are the 'ability' tests with ability on three of the 'appreciation' tests, Rhythm, Phrasing and Intensity. A reanalysis of Wing's data by Faulds (1959) in which he rotates the factors to 'simple structure' confirmed the existence of this factor of 'Qualitative Judgements'. This could be called a factor of appreciation.

Vernon (1950) gives a rather brief report of an investigation using 17 tests which included the Oregon test, some of the Seashore tests and a Musical Knowledge test. The most important factor was a general one. High factor loadings were found for both the Oregon and the Musical Knowledge tests (.84) and for Seashore Memory (.65). This factor therefore looks to be measuring appreciation rather than mere musical ability.

McLeish (1950) used a battery of tests which contained the Seashore test (1919 version) the Oregon test and Wing's battery. His general factor - which accounts for 38.8% of the variance - is one in which the Oregon measures have loadings of the order of .8 as do also the Seashore Memory and Wing's Memory and Pitch. Again the general factor reflects 'appreciation skills' as well as ability. However, we do not have appreciation as distinct from ability, since there are high loadings for the Wing 'Ability' tests in McLeish's study.

The most thorough study using the results of music tests must be that by Holmstrom (1963). He carried out no less than 10 separate factor analyses based on the results obtained from over a thousand school pupils at different stages of schooling. However, as his aim was to investigate the factors of music ability, he did not use any test which specifically claims to measure appreciation. Thus, although he made use of tests 1 - 3 of the Wing battery, he made no use of the last four tests which are 'appreciation' tests and measure qualitative judgements.

There are a number of studies which consider Wing's tests and they have special relevance because of their very widespread use. Whittington (1957) compared musical with non-musical pupils on this test in the hope that he might, "reduce Wing's battery of seven tests to a more economical number - if possible to two or three". His analysis revealed a general factor in in/

in which Pitch, Memory and Phrasing were most important. Unfortunately he only extracted the general factor, although with his musical group it only accounted for 44% of the variance and with the unmusical group it accounted for 28%. Perhaps other factors, had they been extracted, might have confirmed the existence of an 'appreciation factor' such as Wing found. On the other hand, it could be seen as confirming the results that Shuter obtained in a very carefully carried out investigation in which all but one of her five groups were musically able students. In five separate factor analyses of different groups she found a relatively important general factor of musical ability. With her group of 'average' students, her results are not unlike Wing's and her second factor, a bipolar one, contrasts tests 4 - 7 with 2 and 3 (i.e. Pitch and Memory). With the four 'musical' groups, the patterns of the bipolar factors were different from each other and from the 'average' group.

Shuter in her book provides details of further factor analytic studies based on tests. What is most disconcerting is the apparently great variations in the results. This lack of consistency is most evident in Whellams work. Whellams (1973) refactors twelve sets of data based on the administration of Wing's test battery, and also sets of data based on Gordon's tests and Seashore's tests. His rather gloomy conclusion is:

> "One is forced to conclude, after analysing results obtained by testing many thousands of people, that careful factor analysis does not provide any evidence that general statistical factors have any meaningful connection with what is commonly meant by the term 'musicality'."

Studies of musical taste: A further series of studies are based on analyses of ratings of music. Of particular interest are those of Menkin and of Cattell and his co-workers. Henkin (1955, 1957) chose 10 musical compositions, "to represent melody, rhythm, harmony and orchestral colour" and he adds that they were, "representative of a diversified cross section of period and style of writing". His analysis revealed factors of melody, rhythm and orchestral colour. It is interesting that the factors that emerge could be identified as appreciation factors. The work is open to the criticism that what comes out at the end is no more than what Henkin deliberately fed in at the beginning. However, if Henkin's work is accepted accepted/

accepted as having some validity, it implies that the third factor reflects an ability to distinguish different orchestral colours and to have preferences related to this. This factor could therefore be treated as an appreciation one. Similar reasoning could well apply to the other factors.

If Henkin's work is methodologically suspect, Cattell's work is not: it is methodologically and statistically highly sophisticated (Cattell and Anderson, 1953; Cattell and Saunders, 1954). It is based on far more information, ratings on 120 musical themes, and these were taken not solely from the classical repertoire but include jazz, folk music, etc. About a dozen factors emerged. While it is not appropriate to list them, it is important to note that they are, in a most general sense, 'appreciation' factors: more particularly they describe different musical tastes or preferences. This factor analysis provides the basis of Cattell's "Music Preference Test", a personality test, to which reference is also made later.

Discussion

The application of factor analysis consistently shows factors which can be considered as appreciation factors or can be related to some aspect of appreciation. This is, of course, encouraging. Rather less satisfactory, is the lack of agreement where it might be expected. Different workers using similar batteries of tests can produce quite different factor patterns.

One reason for this may be that many of the factor analytic studies are relatively small scale researches. Possibly because of poor computing facilities, older studies are often based on quite a small number of subjects. Thus Wing (1941) used the results of only 43 boys, and Whittington (1957) used two separate groups each with 24. Even with more recent studies, groups of only about 100 are used, though Holmstrom (1963) had very much better numbers, over 800 children for one of his analyses.

Another problem arises from the number of variables fed into the analyses. In some studies they are few in number though in others there are many. The differences here affect the results and make comparisons hazardous. Related to this last point is the choice of variables included. Ideally, in factor analysis, a fairly wide range of variables is desirable. In some studies the range is much wider than in others, and this too makes makes/

makes valid comparisons more difficult. Even with the better analyses, there is frequently a much greater restriction in the range of variables used than one might wish. There is a very considerable range of topics in the psychology of music and surprisingly few of them are sampled to provide measures for factor analysis.

One final difficulty in interpreting and comparing the results of factor analysis arises from the nature of the technique. There is no one method which is correct or appropriate: different factoring methods lead to different results all of which are, statistically, equally valid.

In this section we have noted a number of problems which arise in considering factor analytic studies. Even where a number of investigations are carried out with proper care, so that each is a perfectly competent piece of work, comparisons of their results can be very difficult. This is not to deny the value of the method: it is to suggest that until more wide-ranging studies can be carried out using the techniques which are most justifiable on psychological, rather than statistical, grounds factor analytic studies will contribute but little to an understanding of what music appreciation is.

CHAPTER 3

MUSIC ASSESSMENT TECHNIQUES

Tests of Musical Ability, Aptitude and Appreciation

Purpose of this review: The purpose of this review and critique of music 'tests' is to marshall the available evidence so that it will be possible to answer the following three questions.

1. What is the nature of music appreciation, as it is revealed by tests?
2. What tests could profitably be used in this research?
3. Where are there gaps for which there are no tests and which might profitably be filled by constructing tests?

Our conclusions regarding questions 1 and 2 are given in detail in the appropriate contexts (Chapters 9 and 5 respectively). Question 3 is dealt with in this chapter. There will be, inevitably, some overlap with material from the last chapter since many of the practical investigations into musicality have relied upon tests. However, in this review the approach employed and the depth of treatment differs from that in the last chapter.

When one considers the many tests of musical skills that are currently available it is very difficult to distinguish those that measure appreciation from those that measure other aspects of music. This, of course, is only to be expected in view of the fact that there is such poor agreement as to what music appreciation is. Only if some successful attempt had been made to define music appreciation and to distinguish this from music ability and music aptitude could we hope to have tests of appreciation which did not overlap with music ability. However, as there is no agreement as to the nature of music ability, nor of the nature of music appreciation, the situation with tests is confused.

Aptitude and ability tests: The authors of many of the tests which are available claim explicitly or implicitly that they are music aptitude tests. It is, therefore, not inappropriate to focus attention on the nature of aptitude tests so as to distinguish them from tests of music ability and music appreciation. Aptitude tests should indicate future ability and they are most properly assessed for technical goodness by checking their predictive validity. The content of the tests is immaterial provided the tests do predict effectively. Anastasia makes the point nicely.

> "It should be noted in this connection that the test items need not resemble closely the behaviour the test is to predict. It is only necessary that an empirical correspondence be demonstrated between the two."
>
> (Anastasia, 1954)

Content validity, and its close relation construct validity, are thus not necessarily appropriate aspects of validity to bear in mind with aptitude tests. On the other hand, if one wishes to assess a person's ability either in performing music as an executant or in appreciating music as a listener, then one is forced to consider what is involved in performing or in listening. Hence tests of ability and appreciation are best evaluated in terms of their content or construct validity. A consequence of this is that tests which claim to be tests of music aptitude are not necessarily tests of present music ability or appreciation, although they may be.

As Davies (1971) points out,

> "aptitude does not necessarily manifest itself, and can theoretically exist in the absence of any performance, i.e. where there is no apparent ability."

He points out that "the futility of devising a test to measure aptitude for learning French, in which all the items are written in French, is easily seen", and he goes on to argue that music aptitude tests should avoid employing

employing/

employing material of a formally musical nature since their usefulness might be impaired by differences in musical training, musical experience and between cultures or subcultures. His test follows these principles. It therefore cannot be thought of as a test of music ability or of music appreciation.

Seashore (1919, 1938) is the most notable test constructor who has deliberately avoided the use of musical material. In his book (1938) he indicates that the purpose of his 'Measures of Musical Talent' is to measure native and basic capacities in musical talent before training has begun. These tests have come in for a great deal of criticism (e.g. Heinlein, 1925; Vernon, 1930; Mursell, 1937; Taylor, 1941). Though possibly not all the criticism has been justified, there is no doubt that even for its intended purpose Seashore's 'Measures of Musical Talent' have proved no better and often worse than other tests. Even McLeish (1950), in comparing Seashore's test battery with Wing's, points out that Seashore's has the lower validity, "due largely to its greater specificity" although "the two batteries measure much the same general musical factor". He concludes that "in its general nature, the Seashore battery is adequate for its original purpose, namely, to measure the more elementary abilities required for the understanding and appreciation of music". Nonetheless it will be most effective if (inter alia) "it is used in conjunction with other tests of musical appreciation".

There is no evidence that the most recent version of this battery (Seashore, Lewis and Saetvick, 1960) is significantly different from the earlier ones in respect of its validity. It is unlikely that McLeish's conclusions should be modified.

Davies and Seashore have made use of tests of sensory powers to measure aptitude but the more commonly adopted approach is that advocated by Mursell (1937) or Wing (1948). Mursell holds that, "only the observations of the subjects in various musical situations are a guide to the degree to which talent is present". Wing quotes this with approval in his monograph and bearing in mind the need for face validity in tests he adds the point that, "if the musician or potential musician can find little to interest him in the tests he is unlikely to do well, for, as is well known, it is necessary to secure the co-operation of those tested if a reliable estimate is to be obtained". In similar vein Lowery (1932) opines,

opines,/

opines,

> "If it is required to test for the presence of innate musical tendencies, the entire isolation of constituent factors in music is not likely to be of great service; rather ought a factor which is considered sufficiently worthy of special attention to be brought into prominence with a musical background, the conditions of the testing being therefore analogous to those occurring in musical performance."

Although it would be possible to question the reasons suggested to support the use of musical material (though only Davies has done this recently) it is not relevant to do so in this context. What is relevant is that most music tests do make use of sounds produced on musical instruments and extracts of real music. Even when such tests are designed as aptitude tests, they are looking for evidence of future promise in the present ability shown by those tested. Thus it is not inappropriate for all music tests which employ music as the raw material to be treated as attainment tests indicating the present level of the musical skills of those who are tested on them, no matter whether they claim to be aptitude tests or, more modestly, to be ability or even appreciation tests.

The essence of our argument is that in searching for tests of appreciation, the most important feature to consider is the nature of the test material: the 'label' given to tests (i.e. 'Aptitude Test' or 'Ability Test') may possibly not be very helpful. Tests which deliberately avoid the use of musical instruments and real music are not testing present musical skills: only tests making use of musical stimuli may be thought of as measuring musical ability or possibly appreciation. (This, of course, still leaves the task of distinguishing 'ability' from 'appreciation'.)

(It is worth noting, in the passing, that tests tend, for the great part to be homogeneous in nature. All available tests either measure sensory powers by non-musical means or they measure abilities based on judgements of sounds produced on musical instruments. Yet this is not to imply that tests where laboratory equipment is used to produce sound stimuli necessarily test abilities totally different from those tests where the sound stimuli are

are/

are produced on musical instruments. For example the four sub-tests of Davies' battery bear a considerable resemblance in what they seek to measure with equivalent tests in Wing's battery, although the means used for measurement do differ considerably.)

Ability and appreciation tests: When one considers the musical skills that are measured in tests making use of musical material, the problem of distinguishing music ability and music appreciation arises. With many tests no explicit distinction is made between appreciation and ability. This review is, therefore, necessarily concerned with the nature of the test materials and their authors writings about them. In the discussion that follows, we focus on three of the most important tests or test batteries, Wing's tests, the 'Oregon' test, and Gordon's tests.

Wing, whose battery of tests ('The Wing Tests of Musical Intelligence') is of very considerable interest, distinguishes what he means by music ability and music appreciation. Indeed, in his battery of tests he deliberately avoided having only tests of a cognitive type when he sought to include tests of appreciation which he described as, "the fundamental quality that all musicians would desire to find in any person who claims to have an interest in the art". (Wing 1941). This description is in no way a definition: it is far too vague and imprecise. But Wing in his monograph (1948) did specify more clearly the nature of musical appreciation and musical ability.

> "The two terms which are central are 'musical ability' and 'musical appreciation'. Many restrict the first term to the ability to play some musical instrument. But the teacher of music uses it in a wider sense that includes speed in learning to play, ability to perform the aural tests discussed in the next chapter, and ability to carry out such musical activities as composing. Psychologists have also generally used the term in this extended sense, normally leaving out of account actual executive power, and this procedure will be followed in the present investigation.
>
> "Musical appreciation . . . is the power to recognise or evaluate artistic merit in music; it involves the deliberate aesthetic judgement
>
> judgement/

> judgement of music as it actually exists in compositions rather than ability to solve problems connected with the elementary materials of which music is composed."

Wing proceeds to indicate that 'appreciation' might logically be included as a form of musical ability but prefers to keep the two separate, retaining "'ability' for the performance of certain problems with elementary musical material, and 'appreciation' for discriminatory powers with music as actually performed". This distinction is clearly evident in the tests that he composed.

The first three tests in the battery are 'Chord Analysis', in which the subject being tested has to indicate the number of notes in each of the 20 chords played, 'Pitch Change', in which the subject has to say if a chord has been repeated exactly, or whether, if a note has changed, it has moved up or down, and 'Memory', in which the subject has to say which note has changed on the second playing of a tune (or note sequence) of three to ten notes in length. These three tests in which the answer can be quite unambiguously defined and where no extracts of real music is used clearly typify 'ability' tests. The last four tests are entitled 'Rhythmic Accent', 'Harmony', 'Intensity' and 'Phrasing'. These tests all follow the same basic pattern. The same tune is played twice but in one playing the Rhythm (or Harmony, etc.) has been changed from the original and the person tested has to indicate which of the two ways of playing is the better. Work of established composers, mainly from the 18th and 19th century, is used. Their original writings, rather than the inferior versions 'decomposed' by Wing, are considered the better. These are almost universally recognised as appreciation tests because judgements are made about real music and the correctness of the correct answers depends upon the judgements of the experts. It is noteworthy that Wing, in the latest edition of the manual for his tests calls the four tests 'Harmony Appreciation', 'Intensity Appreciation', 'Rhythm Appreciation' and 'Phrasing Appreciation'.

With the Wing tests there is a clear cut distinction between ability and appreciation in terms of the kind of test material and the kind of task that has to be undertaken. The distinction is not so clear cut when one looks at the results of testing using this battery. The correlation between scores on the first three (ability) tests and on the last four (appreciation)

(appreciation)/

(appreciation) tests tends to be high. Musical capacity or musical intelligence (which it is claimed the battery of seven tests measures) can be assessed equally efficiently using tests of musical ability alone (tests 1 - 3) or by using the whole battery including the appreciation tests (i.e. tests 1 - 7). Evidence for this is given by Wing himself (e.g. in the test manual) for he points out that totals from the first three tests may be used instead of the totals from the whole battery of seven tests, especially for young children or those of limited ability. However, this would not be a valid procedure unless the correlations between the first three tests and some appropriate criterion and between the seven tests and the same criterion were both high. Yet this would not occur unless there was a high correlation between the totals for the first three tests and the total of the last four tests. It thus seems that little new is added by the inclusion of the appreciation tests. A related point arises when looking at the results of the intercorrelations of the subtests and the factor analyses that result from them. In most studies we find that a general factor can be extracted which accounts for a considerable percentage of the variance (usually of the order of 30 - 40%) and that all the subtests, be they ability or appreciation, load on to this factor. This is found in Wing's own study (Wing, 1941), in McLeish's study (1950), in Whittington's studies (1951) with both his musical and his unmusical groups, and in Shuter's studies (1968). It is interesting to note that both Wing and Whittington found that the 'Appreciation of Phrasing' test had a high factor loading on this general factor and that the other tests with the highest loadings were 'ability' tests. This illustrates the point that it is not possible to interpret the general factor as either an 'ability' factor or as an 'appreciation' factor, in the way that Wing used these terms. Further when we look at the 2nd order factors that have been produced in these studies we do not find substantiated factors capable of being identified either with ability or appreciation of music.

In a rather different tradition there is the work which is most clearly embodied in the Oregon 'Tests of Music Discrimination'. (Hevner, 1934; Long, 1965). The origins of this tradition lie in the work of Trabue (1923). He devised a test in which each of the items consisted of either three or four melodies which had to be ranked in order of 'goodness'. The correctness of the ranking was judged by comparison with the ranking

ranking/

ranking given by 'experts'. This test which embodies the qualities we most commonly associate with appreciation tests, such as making a judgement which is compared to the judgement of an elite, is long since out of date. One of its virtues, the use of orchestral music rather than simply using piano music is also a drawback for it has aggravated the problem of providing a good quality of sound reproduction. Even if the original 22 discs were taped, the technical quality of the recording would leave something to be desired. However, the most serious objection that would be levelled against this test nowadays is that its use of four choices in some items makes it too much a test of memory and that consequently interference effects would be expected, and the test would prove somewhat unreliable. Another drawback is that the 'ranking' of the four versions also introduces difficulties into the scoring.

Adler, who followed up the work of Trabue, decided not to rely upon 'expert' opinion for determining how items were to be scored. In his test (Adler, 1929) he decided to use pieces of music from the standard repertory and to make distortions of these. These distortions he believed were inferior to the originals in their quality. For each item there were three distortions and their nature was the same in each. One kind of distortion was to make the passage 'dull', another was to make it 'oversentimental' and the last was to make it sound 'chaotic'. The purpose of the test was to indicate the 'best' version, i.e. the original version. The order of merit in Adler's items, in descending order of merit, was the 'original', the 'dull' version, the 'oversentimental' version, and finally the 'chaotic' version.

The least attractive feature of this test was that it was composed of only six items, and must therefore have been extremely unreliable. The music was presented in a standard form using piano-rolls and the composers who provided the original versions for the items were Mozart, Rameau, Brahms, Weber, Ravel and Chopin. With only six items it seems inappropriate (and almost churlish) to criticise the selection of composers, but the range of styles they represent is rather limited. The distortions that Adler introduced were achieved by making variations in the melodies, and by altering the harmonies and the rhythms of the originals.

Kate Hevner, whose classic work was done in the 1930's, adopted Adler's basic approach. In her original test of 1929 her items contained four alternatives, an original and three distortions. In these distortions

distortions/

distortions the melody was changed, or the whole thing either elaborated or simplified. While this version of her test was longer and more reliable than Adler's, for it had 24 items, it would still be considered technically poorer than is desirable. In 1931 she changed the test in such a way that it became much more acceptable by the more rigorous standards of today. She produced items with two alternatives instead of four and pointed out that this must make them more valid for the need to rely heavily on memory had been greatly reduced. However, she did recognise that with only two choices, the possibility of getting high scores by more or less random guessing had increased. This was offset by having 48 items instead of the 24 in the earlier test.

With assistance from the Carnegie Foundation she continued to develop this test and in 1935 it was published as the Oregon Music Discrimination Test. In this the subject doing the test had to indicate which of the two versions in each item he preferred, i.e. the original or the distortion. In this test the distortion in an item was only in one of three musical elements and there could be distortions of melody, of harmony or of rhythm. It is noteworthy that both the Oregon Test and Adler's earlier test use the same elements for the distortions, but that Hevner in the 'Oregon' test makes recognition of the distorted element an integral part of the test. The Oregon Test of Music Discrimination enjoyed considerable popularity for about 15 to 20 years, although there are very few references in the literature to experimental studies using it. This popularity reflected the quality of the test which, for its time, was vastly superior to anything else available.

During the 1950's the discs for the test were withdrawn from publication and the test was therefore no longer available for general use. However, the test was not allowed to die. A revision of it was made by Long under the supervision of Hevner (now Kate Hevner Mueller). The test was completed in 1965 and full norms produced in 1967. The test contains 'concert-type music' which ranges from the style and time of Bach up to that of Debussy. The test is essentially of the same form as the 1935 Oregon test. Those tested have to indicate the better of the two versions or to state if there is no distortion, and where there is distortion the element of the music which has been distorted has to be identified. In any one item the distortion is in only one element and this may be Harmony, or

or/

or Melody or Rhythm. The full test has 43 items, has been standardised on a sample of over 4,000 and has a test-retest reliability of .9. There are two shorter versions of it using the first 37 and 30 items. They are less time consuming and have been standardised. Although this revision by Long, the 'Indiana-Oregon Music Discrimination Test', has not been published it does appear to be a test of considerable promise. It is interesting to note that Long used standardisation groups from the United Kingdom as well as from the United States. Unfortunately he has no separate norms for those in the United Kingdom, although there is reason to believe they would not be identical. For Long has indicated* that he has produced two separate sets of norms, one based on the whole of the standardisation group and the other based on the results of those tested in the United States.

Another approach that has been used is seen in Gordon's 'Musical Aptitude Profile' which was published in 1965. Shuter (1968) describes this battery of seven tests as, "the most sophisticated attempt to measure musical ability that has so far appeared". Certainly the six years of development that went into this battery of tests has made it into an instrument that is both reliable and valid for the purposes for which it was designed. The tests are organised into three parts, Tonal Imagery, Rhythm Imagery and Musical Sensitivity. It does not measure aptitude using quite the same kinds of tests as are found in other batteries, such as Wing's. In the Tonal Imagery tests it is necessary to say, after a tune and answer have been played, whether the answer is a melodic variation of the tune or whether it is different. This approach is unlike that of Wing's 'ability' tests where the skills required are more basic than that required of judging whether the answering tune is a variation of the first tune. But equally it is unlike Wing's 'appreciation' tests where the correctness of the judgements is culturally determined, a feature that has been criticised by Hickman (1969) and others. To some extent this approach is intermediate between the 'ability' and the 'appreciation' tests by Wing. The Rhythm Imagery tests, i.e. 'Tempo', and 'Metre' are much more akin to Wing's 'ability' tests in that they ask for information that can be (more or less) unambiguously correct or incorrect. The 'Metre' items ask if there has been a change of metre (e.g. from triple to duple) and for the 'Tempo' items it it/

---

*Personal communication

it is necessary to state if the end of the answer is played at the same tempo as the end of the tune. On the other hand the Musical Sensitivity tests (i.e. 'Phrasing', 'Balance' and 'Style') are more akin the Wing's 'appreciation' tests in that they ask for what are essentially value judgements. The 'Phrasing' and 'Style' tests are designed to test interpretation. In the 'Phrasing' test it is necessary to state which of a pair of performances of a tune has the better musical phrasing. In the 'Style' test the performance with better style has to be indicated, though in fact the variations between the two versions in each item are only variations in the tempo that is employed. The 'Balance' test looks at the music, rather than its performance, and one has to say which of two versions has the better ending. The Gordon tests are interesting in that some of them differ in their structure from 'ability' tests (as exemplified by Wing's) and 'appreciation' tests (as exemplified both by Wing's appreciation tests or the Oregon test). Some also seem to measure musical skills that are not covered in other tests. The 'Style' test may appear to be unique, but it is not unlike a tempo test that Wing removed from his final battery of seven tests because it was too time consuming and because it had reasonably high correlations with others of his tests. The 'Balance' test, in which a comparison is made of the goodness of two endings, deals with essentially the same skill as that for which Franklin devised his test (Franklin, 1956) but it is technically much more valid than Franklin's.

Franklin based his test on the principle that the 'best' ending of a melody is most often on the tonic. His test is an individual test in which the subject being tested has to sing the final note of short two-part melodies which are interrupted just before the final note. This test however, has not been recorded, far less published, although the music for the test items is available in manuscript in Franklin's thesis. Franklin produced a group version of the test but he considered it still to be "far from finished both with regard to reliability and validity". Faulds (1959) has reported evidence to suggest that Franklin's test is not valid with older subjects for it failed to distinguish music students from unselected students, but it could possibly be suitable for younger subjects.

Schoen (1923 and 1925) devised a series of three tests which he intended should be used to supplement the Seashore battery. Two of these 'Relative Pitch' and 'Rhythm' are similar to many tests which have been produced since. The third test was a test of 'Tonal Sequence' which was designed, "to reveal the individual's sensitivity for the fitness of the tones in a melody; one's reaction to a melodic line".
Here the subject had to rate four possible endings to a melody; these all ended on the tonic and varied in their complexity. As there were only four melodies, and their validation was based on a sample of ten, this interesting little test has no more than historic interest as a precursor of the technically more adequate test in Gordon's battery.

Tests of evaluation of musical performance: In the tests referred to above, there is more emphasis on the music itself (as composed) rather than on its performance, although a number of them include sub-tests in which musical performance has to be judged. During the past two decades there has been interest in attempting to produce tests that are primarily concerned with performance. These tests have not had the same success as aptitude tests which may possibly reflect the fact that aesthetic appreciation of performed music is not such a tangible quality as ability as a performer (or singer). Consequently none of these tests has been formally published, although copies are available from their authors.

One such test is Kyme's. He argues (Kyme, 1956) that a test which could somehow get at the ability to integrate the elements of music into meaningful wholes, "might be superior to tests which involve only the perception of differences in the elements of music taken in isolation". He therefore devised a test, his 'Test of Esthetic Judgment'. This test requires the evaluation of paired performances, some taken from commercial recordings and others from recordings made at the Northern-California Music Festivals. A very similar test, 'The Cowles Test of Aesthetic Judgment' (Cowles, 1963), is also concerned with the ability to assess the quality of musical performance. Cowles even includes a small number of Kyme's items in his test. However, Cowles' test does not present paired performances of different quality in the way that Kyme's does. Cowles generally arranged the 'inferior' performance in a way that it would not have been produced by obeying instructions in the original manuscript or score of the music. In one item, "Mendelssohn's violin concerto was performed by a professional violinist and by a superb trumpet virtuoso. The exacting technique displayed by the trumpeter did not compensate for the use of harmonics in the the/

the violin version". In another item, "the repetitious first two measures were extended another half measure thus carrying the repeated one note to a point of nausea". It seems reasonable to fear that this technique for exaggerating the differences between the pair of musical extracts for comparison could well lower the validity of the test for it becomes too artificial. However, such criticism is hypothetical for little research has been done with this test. Cowles' work is severely and critically reviewed by Hilton (1969).

A much more competent piece of work is Hoffren's 'Test of Expressive Phrasing'. In this test, which is designed to assess ability to recognise the quality of musical expression in performance of music, the variations between the two performances in the items are variations in, "rubato, smoothness, articulation, phrasing, unity, continuity, dynamics, and dynamic and agogic accentuation". (Hoffren, 1964) Hoffren argues that because the nature of expression demands a gestalt approach to testing, it is not appropriate to have separate sections of the test in which the differences between the 'correct' and the 'inferior' performances are limited to only one element of musical performance. This general argument is in accord with the views held by many musicians that it is impossible to change one element of a performance without changing, possibly quite unintentionally, other aspects of the performance. It is interesting to note that the same kind of argument has been used in the past against tests in which it is the characteristics of the music itself rather than its performance that is under consideration. Yet Wing's appreciation tests and the Oregon Test show that it is possible to devise tests in which the several aspects have been satisfactorily isolated. One might hope that eventually tests of appreciation of performance might also be able to do this. Indeed it is ironic that in the instructions for doing his test Hoffren gives examples where only one element of performance is altered.

Some further tests of musical abilities: Mention should also be made of other tests which could be relevant in a consideration of appreciation, but which have not been fully developed or which are in some way inadequate. The most interesting is Lowery's 'Cadence Test'. (Lowery, 1926) Lowery believed that, "in order to study the musical ability of an individual, the technical and interpretative sides of musical performance must be distinguished from one another" and that in the intelligent listener (unlike unlike/

(unlike the performer) only the latter side is involved. "Thus tests of musical ability must cover primarily the interpretative side and may be independent of technical equipment." The 'Cadence Test' was devised, "in an attempt to cover some of the factors necessary to the appreciation and interpretation of music". Subjects are told that two two-chord cadences will be played and are asked to say which sounds 'more complete'. Lowery claimed that this procedure was objective, arguing that in the standard classical compositions of the last three centuries' the perfect and plagal cadences have been considered the most complete, the various forms of the half-close, or imperfect cadence next, and the deceptive cadence least complete. However, as Shuter (1968) points out, "cadence tests are difficult to apply to subjects without musical training owing to the difficulty of describing them and because two chord cadences present a certain ambiguity of key". Lowery was unable to develop his initial test as his energies were to be devoted to the work of directing a Technical College, and his aspirations for a test using, "cadences exactly as they appear in the works of the great composers" were not to be realised.

Finally it must be admitted that there are some tests which have received no mention, although some of them are quite important in their own ways. Thus Bentley's 'Measures of Musical Ability' (Bentley, 1966) is designed for primary school children and measures the same abilities as many other tests. The 'Whistler and Thorpe Musical Aptitude Test ' (1950) measures abilities covered by other tests, but is not so reliable as them. The Kwalwasser-Dykema Music Tests and the later Kwalwasser Music Talent Tests have manuals that provide no information on reliability or validity, but studies done independently suggest that they are seriously lacking in these respects. Gaston's Test of Musicality (Gaston, 1958) is rather short as half of it is an inventory to assess interest in music and the tonal items are not all equally good. Lundin's tests (1949) aimed to measure objectively those aspects of music commonly taught in music theory courses in America and are hardly appropriate except for those who have made some formal study of music.

Assessment of response to music: Another area which has been investigated by a number of investigators, but for which no test has been produced, aims at assessing the kind of reaction which the music evokes in its listeners, or, as Valentine (1962) would prefer, the types of attitudes that different people bring to the music that they have attended to. A

A/

A typical procedure would be to play a piece of music and then to ask for introspections as to the effect the music had or what it meant. These would then be analysed using some pre-arranged scheme, such as that of Myers (1922). There are four major problems here. The first is to know what classification scheme is appropriate for analysing the responses. Yingling (1962) in a review of the different classifications of reaction patterns in listening to music, reveals what seem to be considerable divergences of opinion on this matter. Nonetheless they are probably not so great that they cannot be overcome and Yingling concludes that four broad categories are sufficient for the classification. The second problem with this technique is that introspections have traditionally been used and the task of classification is difficult. As with any open-ended material analysis may well be subjective to some extent. The third problem is that the responses which are given depend not only upon the musical stimuli, but also to a very considerable extent on the form of question asked. It is difficult to explain what is required by way of response without running the danger of leading the person tested into one category or another. To determine a good technique here would require considerable preliminary study. The fourth and possibly most serious problem is that since there can be only a limited number of musical works, the responses to them may not be sufficiently reliable to be worth using. This may affect investigations of response to music more than it does standardised ability tests.

Of interest in this connection is the work done by Lifton (1961). He developed a 'Music Reaction Test': "because of the need to evaluate the aesthetic sensitivity of counseling trainees, and to test its relationship to empathy". The test was one in which four pieces of music were played and the subjects were asked to state, 'what the music means to you.' The coding scheme proved precise enough to be reliable, but was limited to essentially one area, the extent to which the listener experienced an emotional feeling. Because of the self-imposed limitations as to the purpose for the test and the coding, this test cannot have general applicability.

Another approach to the problem of assessing response to music makes use of the Farnsworth/Hevner 'mood clock'. Hevner (1935b, 1936) discovered that ratings of music on certain adjectives were consistent enough and correlated highly enough to enable her to produce groups of similar adjectives against which any given piece of music could be judged. The

The/

The groups were carefully arranged in a circle like the numbers on a clock face with opposite descriptions being opposite on the circle. The original study was replicated and updated by Farnsworth (1954) whose version is technically much better than the original. The disadvantage of this test is that only one kind of response is possible, one about the 'mood' of the music. It does not allow the diversity of modes of response that Myers and others have so reliably documented.

Assessment of musical interests and preferences: One type of assessment that merits some attention here is measurement of musical interests and tastes. These tend to make use of inventories and to be rather general in nature. One of the questions regarding musical preferences in the 'Inventory of Music Experience and Training' that Long (1967) developed from an earlier questionnaire of Hevner's, exemplifies this approach.

> "What kind of music do you enjoy? In each of the groups below check two kinds. Check the two kinds in each group that you would most want to sit and listen to.
>
> 1. ( ) Symphony orchestra.
>
> ( ) Military band (marches).
>
> ( ) Concert band.
>
> ( ) Dixieland Jazz band."

Farnsworth (1949, 1950) took considerable trouble to ensure that the scale he devised to measure musical taste was as accurate as possible, and in terms of the quantification of interest his technique was thorough. His difficulty, one which all must face up to, lay in describing different types of music in purely verbal terms. Four separate scales were produced, to measure independently interest in 'Popular' music, in 'Hit Parade' music, in 'Serious' music and in 'Waltz' music. But in a note to those who were doing the self-ratings, Farnsworth pointed out that, "it must be acknowledged that the separation of serious from popular music is somewhat arbitrary", and he then tried to indicate very briefly what he meant by these two terms. 'Hit Parade' and 'Waltz' music he apparently felt needed no explanation.

The most thorough attempt to deal with the problem of preferences in music is that of Baumann (1960). He developed his 'Music Preference Inventory' the basis of which was a recording of fifty musical excerpts excerpts/

excerpts chosen so as to fall into three main categories: there were twenty 'popular' items, twenty 'classical' items and ten 'traditional' items. Subjects had to mark their reaction to each selection separately on a three point scale. While the three categories of music are not in any way defined, this does not really matter. Reactions to particular pieces of music are recorded in an objective way. What is noteworthy is that only the extracts of serious music are unaffected by the passage of time, and the inventory would be quite inappropriate for use in the 1970's. Despite this drawback it does seem important to measure preferences for the ephemeral styles in music that are so much a part of the present music scene.

Much more broadly based questionnaires such as the Allport-Vernon-Lindzey 'Study of Values' (1960) or the Strong Vocational Interest Blank (Strong, 1943) deserve some mention. These inquire into aesthetic and, to a lesser extent, musical interests and aptitudes and attempt, successfully enough, to put these into the context of other interests.

Questionnaire and Other Assessment Techniques

Assessment of understanding of a piece of music: In all the tests which have been referred to above, the items make use of only short extracts of music, usually lasting no more than about half a minute. Yet many of the great compositions last a very considerable length of time. Mueller (1956), who has always firmly believed that the cognitive side of listening to music is of paramount importance, developed a testing technique in which a complete composition is presented to its listeners and then repeated three or four times. After the various presentations the listener answers a list of questions. The beauty of this approach is that music and/or the questions can be as easy or as difficult as the tester desires. Consequently this technique has the potential to test skills which cannot be tested using short items (e.g. the recognition of the 'form' of a composition). On the other hand, what is tested is more or less specific to the composition(s) which are used, and the testing is extremely time consuming. There would be little to gain from this approach unless high level listening skills were being assessed and this is only appropriate for a very small minority. Mueller found that even apparently very easy questions were often very badly answered!

Discussion

Music assessment techniques and music appreciation: From a comparison of the topics covered in the review of the psychological literature (the 5th section of Chapter 2) and the tests described above, it will be seen that there are topics for which there are no published tests. We have already discussed the lack of formal tests of response to music. Other areas lacking tests, such as the consonance/dissonance of particular chords, have been ignored in this review either because the topics were judged to have no real bearing on appreciation, or because there simply was no relevant test material.

At the beginning of this chapter we asked three questions. So far we have not given specific answers to them. With regard to the first question (What can tests indicate about the nature of musical appreciation?) the prime function of this chapter has been to marshall the evidence rather than to draw conclusions. This is deliberate. In Chapter 1 it was explained that the attempt to describe the nature of music appreciation would be based on several different lines of study: the coverage of music tests is but one of these. It is the function of Chapter 9 to draw together the threads from the several lines of enquiry so that conclusions about what musical appreciation is can be drawn. Nonetheless, it is noteworthy that the majority of assessment techniques are concerned with musical abilities - and this overlaps with musical appreciation - or else they deal with musical tastes or attitudes towards music. These may be areas in which it is technically easiest to assess. However they are also areas which have received fairly intensive investigation. Indeed the test procedures do, very roughly (and not unexpectedly), cover the topics which have received most investigation from psychologists. There is no clear indication in the test instruments of any ability or quality which necessarily ought to be labelled "music appreciation".

Choice of assessment techniques for this research: The second question that justified the review above concerned the choice of tests to use for this research. It is evident that the available tests cover a wide range of musical abilities. Criteria such as the technical quality of a test (i.e., its reliability, validity) or its availability were therefore appropriate in deciding which tests to use. However, although there is a more-than-adequate range of tests of musical ability, there is less adequate adequate/

adequate coverage in other areas. Since the choice of tests depended very considerably on practical considerations, such as the time available or the range of abilities being tested, this topic is dealt with in Chapter 5.

Gaps where tests need to be developed: The third question at the beginning of the chapter asked about gaps for which there are at present no tests. One of the most obvious gaps is the lack of genuinely objective tests to deal with 'appreciation'. Both with Wing's appreciation tests and the Indiana-Oregon Test of Music Discrimination - a comparison is made between an original piece of music and a modified version of the same music which is intended to be inferior. However, as there are no absolute standards in music composition, it cannot be definitatively stated that 'decomposed' versions are always inferior. This problem has been recognised and discussed by most writers dealing with music tests. It was felt that this provided a reasonable challenge to take up since an objective test would have a validity that might be lacking in the more generally used tests. (The development of such a test is described in Chapter 6.)

A rather different kind of problem is found with techniques for assessing response to music. As we have shown, procedures do exist and these include some that have been employed for over half a century. What is lacking is some method which is both reliable and at the same time is sufficiently broad in coverage that it can deal with many pieces of music and with different kinds of response. This difficulty derives from one of the fundamental problems of psychology, that of dealing with subjective experiences. There can be no simple solution to this but the semantic differential technique does appear to be a promising tool, first of all because it enables a great deal of information to be gathered in a short time, and secondly because it is a reliable technique. It was decided to employ a semantic differential test of response to music for this research. Although the semantic differential has been widely used in other contexts, there is only a handful of references to its use with musical stimuli in the literature. As these provide no detail of how the technique was used, it was necessary to develop a procedure that would suit the requirements of this investigation. (This too is fully described in Chapter 6.)

One further task of 'test' construction was imperative. This was the development of a questionnaire to probe into the musical background and experience of our subjects. The necessity for producing such a questionnaire

questionnaire/

questionnaire does not derive from any shortage of questionnaires. But because no two investigations use quite the same kind of people, it is commonly recognised that it is desirable to tailor questionnaires of this type to the characteristics of the subjects as well as to the needs of the investigator.

As significant as the gaps, are the underdeveloped areas. There are tests which have not been fully developed that measure musical skills not tapped elsewhere. Lowery's Cadence Test is possibly the most noteworthy example of this.

One other type of test which could prove fruitful but which we believe has only been used by one person (Pflederer, 1966), would be based on a musical analogue of Gottschaldt figures. To recognise embedded melodies may show a perceptual ability that is quite unlike the abilities assessed by most 'music ability' tests. Furthermore, such a test, because it parallels the 'Embedded Figures Test' (Witkins, H. A. et al, 1962) might possibly measure the variable 'Field-Dependence/Field Independence'. As cognitive style variables, of which this is one, are often considered to deal with personality, in its broadest sense, as well as with mere cognitive functioning, a test such as we are proposing might help bridge the gap between music and personality. Of course, an 'Embedded Musical Figures Test' might not measure Field Dependence. Vernon (1969) suggests that Witkins' own test heavily involves spatial ability (k). A version of it with musical stimuli might be expected to measure something quite different.

Another topic for which there are no practical procedures for investigation concerns music 'as a language' although Meyer's work (1958) could be used as a basis for developing some systematic technique here. Such an undertaking might not be considered profitable; it certainly seems unlikely until the philosophical problems surrounding this topic are more clearly resolved.

In a study such as this one would, ideally, use a great variety of tests including the underdeveloped types. However, there is little virtue in using such test instruments if they give unreliable results. Yet the development of even one test is a time consuming process which raises many practical and organisational difficulties. As the test development already decided upon is heavy, further development, even of tests partly developed by their original authors, is not feasible.

CHAPTER 4

PERSONALITY AND MUSIC APPRECIATION

Introduction

In our earlier material dealing with the nature of musical appreciation, we have indicated many different possible aspects of music appreciation. No matter how confused the situation is regarding the nature of music appreciation, one fact is clear - it is that there are considerable individual differences in appreciation. This we feel sure is true no matter what aspect of appreciation is selected. Undoubtedly experience and opportunity are determinants of these differences, and here home background and education must be of key importance. Yet they may be no more important than personal qualities such as one's aptitudes or abilities in music. Indeed, such is the nature of music that its appreciation undoubtedly involves more than just cognitive processes: variations in musical appreciation reflect personality variables as well as intellectual ones. Révesz (1953) expresses the belief that, "musicality irradiates the whole individual and accordingly forms a characteristic trait of personality as a whole". While it is true that this is more a statement of opinion than a proven fact, it is indicative of the attitudes held by very many authorities.

In studying the relationship between personality and music, there are two principal approaches which could claim validity. The first is to consider the psychological studies in which personality is treated as a major variable - studies such as Payne's where there is a deliberate attempt to make the personality dimension the most important. In all but a few of these studies, the music variable(s) are the independent variable(s) and the personality variables are the dependent variables. Even when one takes account of studies which focus on musical phenomena, but for which personality data has been gathered and correlated with the music data, the amount of research is minimal. The second approach - an approach which we reject - is to study biographical material about musicians. To be done competently this requires considerable musicological skills (which we lack). Moreover, we believe the findings would suffer from the same kind of faults as 'baby biographies' suffered from when used, before the turn of the

the/

the century, as evidence in child development studies, i.e. the sample of people studied is atypical and the behaviour/personality traits which are noted are the exceptional ones thus giving an unrepresentative view.

There is a further source of material which may be of some value, although it is not specifically about music. Studies about the Arts in general, and to a lesser extent studies about the visual arts, may provide illuminating parallels.

Studies Relating Personality to Music

Extraversion, neuroticism and musical taste: Payne (1967) discusses the relationship between musical taste and personality, as assessed by the Maudsley Personality Inventory (Eysenck, 1959). She deals, on the musical side, quite simply with the "Classical-Romantic" dimension. She restricts herself to a study of composers of serious orchestral music, but does cover a wide range from Correlli, Handel and Haydn at the most 'classical' extreme to Chopin, Mahler and Delius at the 'romantic' extreme. Twentieth century composers are well represented with Schönberg, Berg, Bartok, Britten and Tippett. The experimental procedures she uses are open to criticism on a number of grounds. Nonetheless, this study is of importance because few studies deal directly with this topic. Payne obtained positive and significant correlations between a preference for Romantic music and Neuroticism on both her groups of subjects, but she found no significant relationship with Extraversion. Sex influences were negligible, but Romantic music was more favoured by younger people. However no data to indicate the significance of this is presented in her paper. In another report dealing with a related topic (Payne, 1961) she distinguishes aesthetic emotional responses from specific emotional responses. Neuroticism correlates positively (and one is lead to assume significantly, though no statistical evidence is presented) with specific emotional responses - the normal 'life' emotions, a finding which seems to be in accord with the evidence of Kwalwasser (1955) that musicians are more emotionally sensitive than the average. However, Payne finds that Neuroticism correlates negatively (and presumably significantly) with aesthetic emotions. In

In/

In explanation of these findings, Payne suggests that 'Romantic' music may be liked by the more neurotic precisely because it is more appealing to (normal) emotions, whereas 'Classical' music appeals indirectly, through the comprehension of its form etc.: this process is as much cognitive as affective and the aesthetic emotion is, I believe, an emotion or satisfaction arising from the musical understanding or insight that the individual has rather than an emotion directly in response to the music itself. It is possible to take issue with Payne over her views on the nature of the aesthetic response. She believes the aesthetic emotion is different from the normal 'specific emotions': I would argue that the emotional experience and behaviour are essentially the same and that it is the stimuli which evoke the emotional responses that differ. In one sense this is a trivial and academic difference of opinion. It does not affect the results or the interpretation of them. On the other hand, Payne's viewpoint on this matter, as evidenced by her writing, does seem to imply a value judgement - that a taste for 'Classical' music is preferable to a taste for 'Romantic' music. Although she uses Eysenck's terms in a technically accurate way, there do seem to be connotations that are subjective in her summary of the situation:

> "The experience of an aesthetic emotion and the awareness of a specific emotion would seem to form a dichotomy - one (the aesthetic emotion) being confined to people of a stable character when listening to classical music, the other (specific emotion) to neurotic people when listening to romantic music."

The musical dimension Payne discusses resembles the K-factor described by Eysenck (1940). Although he worked with visual stimuli, the distinguishing features of this factor, a liking for bright sunny modern art v. a liking for duller more foreboding older masters, seems akin to Romanticism-Classicism. Pickford's (1948) description of Eysenck's factor, as one which contrasts, "formal with representational art" is, we believe, in accord with our interpretation here. Eysenck discovered that Extraversion, not Neuroticism, correlated with his K-factor. It might be noted that in Eysenck's study, as in Payne's, younger people prefer bright less formal stimuli more than older people. Also in this context, Francès (1968) hypothesised that introversion might orient choice towards one form of art rather than another, i.e. correlate with K-type factors. However, researches by his colleagues

colleagues/

colleagues (Roubertoux and Carlier, 1969; and Roubertoux, Carlier and Chaguiboff, 1971) have not verified this hypothesis. Work in this tradition is further discussed below.

Eysenck's research yielded another factor which he labelled the T-factor. This is a general factor of "good taste". His work is confirmed by the parallel work of Burt (1939), Evans (1939) and Pickford (1948). This factor appears to apply for different Arts, e.g. Music, Painting, Poetry etc. Eysenck does not find any personality correlates for this factor.

A not dissimilar piece of work by Keston and Pinto (1955) found that preference for "good" music correlated very highly with "intellectual introversion" ($r = .63$, $N = 202$). However, this does not contradict Eysenck's findings. "Intellectual introversion" was assessed by means of the A-scale on the Heston Personal Adjustment Inventory - where it is designated "Analytical Thinking". Heston describes an intellectual introvert as, "independent, analytic and theoretical; he likes carefully planned and detailed work, is persistent at tasks, and is serious as opposed to casual". There can, therefore, be no doubt that the 'intellectual introversion' of Keston and Pinto's study is not at all analogous to Eysenck's introversion. It may well bear a closer resemblance to intelligence or, at least, characterise the convergent from the divergent thinker.

Keston and Pinto however also measured "sociability", a trait that presumably overlaps with Eysenck's extraversion, and obtained a positive but non-significant, correlation. Since their scoring for music preference presupposed a continuum from "serious classical music" through to "popular ('swing' etc.) music" with the former end receiving the heavier weighting, their music preference score should reflect the T-factor if it is common to different Art forms. Keston and Pinto therefore have findings which are in agreement with Eysenck's. They also cite two other studies in Art and Literature by Carroll* and by Coggins, Hensley and Mull** which lead to non-significant correlations between extraversion and aesthetic appreciation.

---

*Carroll, H. A. (1932): "A preliminary report on the study of the relationship between ability in art and certain personality traits", Sch. and Soc., Vol. 36, pp.285 - 288.

**Coggins, K., Hensley, R., and Mull, H. K. (1942): "Introversion and the appreciation of literature", Amer. J. Psychol., Vol. 55, pp.560 - 561.

Despite a body of evidence that suggests that the Taste factor applies to different art-forms and the agreement between different studies regarding its personality correlates - rather negative evidence since the studies agree that Extraversion is not a relevant correlate - Roubertoux (1970) concludes, "that personality traits are related to interest to art, but to each artistic interest there corresponds a specific form of personality".

Studies based on Cattell's model of personality structure: There are two differences between the work of Roubertoux and the others already discussed. The first is that Roubertoux used the 16 P.F. to measure personality. The more detailed profile this instrument gives may reveal differences masked by cruder instruments such as the M.P.I. or E.P.I. The second difference is that Roubertoux studied interest in art. Attendance at Art Galleries (one of his variables) may not be correlated with "good" artistic taste as distinct from "poor" artistic taste. If there is truth in his claim that for each art form there corresponds a specific form of personality, then the relevance of most of the studies referred to, with the exception of Payne's, may be rather limited. Ironically, this would apply to Roubertoux' own work, for in the Paris School little work is done on music, with the most notable exception of Francès (e.g. Francès, 1957, 1958a, 1958b, 1968).

We believe it is premature to judge on Roubertoux' claim, though special caution must be exercised in considering non-musical studies. We note that the data Roubertoux presents in his paper shows that on the 16 P.F. his different groups were similar in having above average scores on anxiety ('QII'), guilt proneness ('O') and ergic tension ('Q4'), although how far above the average they were depended on the specific artistic interest.

16 P.F. data about those with interests in the Arts has been collected in the "Handbook for the 16 P.F." (Cattell et al, 1970). "In the purely academic field," the authors write, "the most distinctive profiles . . . are those of musical and artistic performance." Unfortunately, although there is a wealth of quality data on artists, there is relatively little about musicians. Data from two separate studies provides information on a total of 54 people and the majority of these (31) are not performers but music therapists (Shatin et al, 1968). The Profile for musicians is fully described in the 16 P.F. Handbook:

The/

> "The musician profile is a very unusual combination. High premsia (I+), autia (M+), and radicalism (Q_1+) bespeak a strong subjectivity and a refusal to accommodate. But with this there is a self-discipline and self-reliance in the high self-sentiment (Q_3), super-ego (G), and self-sufficiency (Q_2). Although slightly high exvia and high independence are indicated at the second order, any formulation of conclusions merely in second-order concepts - the popular notions or extraversion and anxiety - would here miss much of the pattern, for there are paradoxes within each. For example, as to the latter, low susceptibility to threat (H+) and low guilt (O-) are tied to comparatively low ego strength (C-) instead of high as would be expected. And, in exvia, high E, F, and H are linked oppositely to the usual pattern with moderate sizothymia (A-) and marked self-sufficiency (Q_2). The passive "lover of music" might be expected to share the sensitivity (I+), autism (M+), and self-involvement (Q_2+), but the performer has also certain extravert qualities and self-discipline (H, Q_3)."

Whilst this provides an interesting and seemingly authoritative description of those tested, it is debatable how reliable the data is, especially since on 4 of the 16 factors the performers and therapists are markedly different. (Data is presented in Appendix 1.) The fact that these differences are readily understandable should not minimise the seriousness of the situation. There is a real need for much more data so that the profiles for different musical groups (e.g. music performers, music therapists, music teachers, music students etc.) can be reliably established. Only then can what is common to the musician be distinguished from what characterises therapists, teachers etc.

It is not only in the work quoted by Cattell that musicians 16 P.F. results have been obtained. McLeish (1970) used this test on a small sample of the student population. He tested on a battery of other tests, largely attitude and opinion tests. Although he does not quote any of the 16 P.F. results, he does point out that there are differences between his various student groups. His music students, "are very tenderminded about social and educational questions, very stable, conservative, with a low score for utilitarian value". They are, incidentally, quite unlike his art students, who are "extremely radical, toughminded, with a low need for financial and social security".

Cattell and his co-workers are responsible for one very major piece of work relating music and personality (Cattell and Anderson, 1953a; Cattell and Anderson, 1953b; and Cattell and Saunders, 1954). This was the development of the I.P.A.T. music preference test - a disguised personality test that relies upon judgements of passages of music. The test is based on a factorisation of a "catholic choice" of 120 musical themes and thereafter the correlation of the obtained factors with personality factors. Whilst this work is of great interest, and the eleven or so musical dimensions have been confirmed by several factor analyses, Cattell (1965) in his book "The Scientific Analysis of Personality" admitted that, "No one has pursued this research far enough to know how these preferences are determined by the individual's emotional make-up". The situation seems unchanged at the present time. The reason may be that this work seems too complex or lacking in face validity. Undoubtedly Cattell's work, using 16 or more personality dimensions, is very detailed. This is seen as a disadvantage, even a fault, by many people. Rightly or wrongly they believe that the statistical analyses may have been pushed too far and this makes any tests not only impractical in use and difficult to understand, but also potentially dangerous since they may yield distorted descriptions of personality. To take the step further and base the assessment of personality on preference of music, pushes, for a number of people, credibility beyond its limit. The lack of development of this work typifies the apparent lack of interest in music and personality in favour of a very considerable interest in musical abilities.

With the exception of the 16 P.F. profiles of musicians, in all the studies referred to the musical variable has been some measure of preference or taste, either a liking for serious or classical music as against no liking, or a dislike for such music or, alternatively, a preference for one style of classical music or another.

Cognitive styles in relation to music: Vernon, in some interesting studies, provides indirect evidence about personality and musical taste. Instead of administering a test of musical taste to a sample, he considered available 'hard' evidence of musical interest. He found that during the year 1927 -28, 60% of the members of the Oxford University Music Club and Union were scientists, four times the proportion to be found in the University as a whole. This unusual finding calls to mind Hudson's work (Hudson, 1966) in which he finds that the differences between Arts and and/

and Science Specialists are in the convergent/divergent dimension (see Guildford, 1950, 1956). Hudson's own work (1966, 1968) and the work of such people as Torrance (1962) suggests that this dimension is as much a Personality dimension as an intellectual one. We have indeed hypothesised that 'intellectual introversion' is akin to 'convergence' and, if our parallels are valid here, then Vernon's evidence is at least congruent with Keston and Pinto's. However, Vernon's findings are open to question. Shuter, reviewing the relationship between musical ability and mathematical/scientific abilities, shows, for example, that Révész's results (1946, 1953) contradict Vernon's. The evidence on this particular issue is far from clear.

We have introduced, rather obliquely, reference to the convergent/divergent dimension. This, at the present time, is often considered to be but one of a number of different 'cognitive styles', and it is interesting to speculate whether any other of these cognitive styles might have a bearing on music appreciation.

Although evidence with music is lacking, Child (1965) and Child and Iwao (1968) find, when using visual stimuli, that aesthetic sensitivity is correlated with cognitive style variables such as 'cognitive independence and openness'. Child and Iwao:

> "tentatively conclude that perhaps this relation between personality and esthetic sensitivity may be found in any society where esthetic values are stressed in some generally available part of the cultural tradition - as in Japan and in Western European tradition - so that the individual with cognitive independence and openness has esthetic values available to him as one possible medium for expression and gratification of these cognitive tendencies."

Two other variables found by Child (1965) to be significantly correlated with aesthetic judgement are, firstly, measured anxiety*, which may parallel the findings of Roubertoux and of Payne, and, secondly, 'tolerance of complexity'. This latter is of interest since Berlyne (1960) has shown that collative variables such as complexity may influence influence/

*We quite deliberately use the phrase '<u>measured</u> anxiety', since Child pointed out that the higher measured anxiety of the more aesthetic subjects resulted from their greater awareness of their anxiety, not from a genuinely higher level of anxiety.

influence aesthetic choice. Unfortunately, Berelyne's now classic work, like Child's, is based on visual stimuli.

It is difficult to know to what extent the findings of Child and his co-workers, based on the visual arts, parallel (say) the profile of musicians as given by Cattell. The problem as Witkin (1962) so aptly points out is that cognitive style variables, "represent different ways of cutting the personality 'pie' from those traditionally used". It is conceivable that these newer approaches to the study of personality and aesthetics may prove the more fruitful.

The psychodynamic approach: One fact that is common to both Cattell's work and to Child's is the use of psychodynamic concepts: Cattell in his C and G factors (ego strength and super-ego strength), and Child in his use of somewhat Jungian 'Myer-Briggs-type scales' and variables such as 'Regression in the service of the ego'. Wallach too (Wallach, 1959) uses Freudian language when he discusses the motivation for attending to art and music in terms of symbolic sexual arousal.

This may be a reflection that purely non-analytic approaches have proved too limited to be completely useful. Put another way, psychodynamic theories are often described as providing, or attempting, explanations rather than mere description. This greater depth, this concern with motives as well as with final behaviour, may be of some relevance in understanding any aspect of aesthetics. Nonetheless, the studies we have reviewed have been based on solid experimental work.

In a review of the effects of music on human behaviour, Taylor and Paperte (1958) work from a rather neo-freudian framework. Much, though not all, of their review is inappropriate for us. But in considering the relationship between music and personality, they do refer to a study by Burton. Unfortunately, as the following quotation may show, this is not reported in sufficient detail to evaluate: "One third of the musicians in Hollywood were administered the Guildford Zimmerman temperament scale: they were found to be normal.": More importantly, they make reference to the extensive (American) use of music therapy. However, they admit that the use of music, as an adjunct to therapy is still in its infancy. More recent writings on this topic (e.g. Alvin, 1966; Priestly, 1975) suggest that the role of music may be subsidiary and that it is the therapist, as a person, who effects the therapy: the music is merely a means for establishing appropriate contact between therapist and client. We are dubious as to the relevance of any of the findings of music therapy for our work.

The sociological perspective: The sociological approach to the study of human behaviour tends to focus on those determinants of behaviour which are external to the individual whereas the psychologist who is concerned with 'personality' and 'individual differences' is primarily concerned with those qualities within the person that account for his individuality. As a consequence, those who have been interested in the sociology, and to a lesser extent the social psychology, of music have not really addressed themselves to the kind of issues that we are concerned with. This is not to deny the importance of people such as Paul Farnsworth (whose 'Social Psychology of Music' was written so that he could stress social influences) or of the sociologist, John Mueller: it is very likely that, in the final analysis, their broader perspective will prove the more valuable. Furthermore, there is a danger of ignoring the crucial fact that there are real areas of overlap in the various disciplines we are discussing. Thus, in his book on the sociology of music (Silberman, 1963) does discuss the personality of the musician. However, the kind of analysis he presents is quite different from that which we are adopting. He is particularly concerned with the interactions between individuals, with the extent to which an individual will, or will not, make use of facilities provided for music making or for listening to music, and with the differing outcomes of the various social influences that determine ones musical interests, tastes, activities etc.

There is one question, which is broadly social, which we must consider. It is, 'How important is the social unit, the family, in determining how musically appreciative one is?'. In a great number of studies there is evidence that a musical background is helpful in developing a child's musical abilities and interests. However, it is difficult to disentangle influences such as intelligence and social class. The higher up the social scale a family is, the higher the level of general ability and of musical ability, and the more serious ones musical taste. If allowance is made for social class and intelligence, the influence of parental example or exhortation is generally not considered to be very great. Unfortunately, a generalisation such as the last one can be misleading because the extent of the parents' influence depends very considerably upon what aspect of musical ability or interest is being considered. Thus, if performance on music tests is considered, the evidence from studies of the relative importance of heredity and environment suggests that the former is of great importance. Consequently, parents direct influence is less. Formation of taste is

is/

is possibly much more determined by what happens within the family unit, though social pressures from outwith the family may be far more potent. One final point, of some relevance in this study in which adolescents and adults are being studied, is that the influences from the home are greater with younger children than with older ones.

Discussion

In each of the two areas, the psychology of personality and the psychology of music, there is a rich literature and a wealth of findings based on empirical research. But in neither is there any generally accepted theoretical framework to hold together in a proper way an integrated and coherent body of knowledge. It is this that bedevils studies in which personality and musical appreciation are linked since it makes it inevitable that the research findings do not build up in such a way as to provide any clear picture. We believe this is precisely the situation in the research reviewed in this chapter.

It is also this lack of coherence in our subject matter that has led to our self-imposed restriction of using the (not incompatible) personality theories of Eysenck and Cattell as the foundation for our work.

CHAPTER 5

THE FIELDWORK

Organization of the Work

Investigations into the nature of musical appreciation: In Chapter 1 a rough sketch was drawn of the intentions behind this study and the way they were to be worked out. The first task was to clarify what is meant by the term 'music appreciation'. Three separate approaches are employed for this. The first of these, the review of the literature, was the subject of Part I. The two others are practical, as is the investigation of the correlates of musical appreciation, and in this Part, a description is provided of how the work was actually carried out. The first of the practical investigations carried out was an attempt to discover if there was a lexical definition of musical appreciation. As the review of the literature revealed many aspects of music appreciation, it was especially important to discover whether the various ideas about music appreciation stressed by different writers are generally considered to be interrelated in some way or whether music appreciation is many different things. Neither of these possibilities is particularly attractive. For this a special questionnaire was produced (see Chapter 6) for use with musicians. Although the number of musicians used was relatively small, there were three distinct groupings. First was a group of students who were, on the whole, freshly qualified, second was a number of the staff of the music department at Jordanhill College of Education and third a number of instrumentalists who play in one of the major symphony orchestras based in Glasgow.

It was feared (with some justification, as the results were to show - see Chapter 7) that the confusion evident in the literature might be reflected in the results of this investigation. As a consequence our second practical investigation, an investigation into the structure of musical abilities and musical appreciation, was treated from the beginning as of very considerable importance, both as a study in its own right and because it could determine which variables might be treated as 'music appreciation' variables to correlate with the personality variables. For reasons of practical convenience, this part of the study was carried out on, and limited to, school pupils.

Investigations into the relationship between musical appreciation and personality: Because the number of subjects would be great and the programme of testing heavy, it was decided that the main investigation into the relationship between personality and music appreciation should be built onto the school based study of the structure and factors of music appreciation. This provided a procedure that was administratively convenient and allowed the systematic collection of a great amount of data. There was in practice, therefore, one large piece of work. Only in the analyses of the results have the two aspects been separated.

Despite being a major piece of work, this school study suffers from one important limitation. The great majority of even the most musical pupils do not make music their career. Although such talented persons may become enthusiastic listeners to music or even skilled amateur performers, they are likely to differ in a number of respects from those whose dedication to music makes them devote their lives to it. It was therefore considered appropriate to obtain data about the personalities of musicians since this would allow interesting comparisons as well as being a valid study in its own right. Qualified musicians training to be teachers at Jordanhill College of Education were chosen since they had the real merit of being readily available. Another group of students was selected, students at the Royal Scottish Academy of Music and Dramatic Art, the only music 'school' of its type in Scotland. At the 'Academy' are many who do not intend to be school teachers. One could therefore hope that the data based on these students would not be biased in the way that the Jordanhill data might be.

Timetable of the data collection: Since the number of music students attending Jordanhill College each year is relatively small, a programme of testing them was started even before this research was "off the ground". Testing the Jordanhill music students on personality tests for this research has been carried out each year until session 1974-75.

The earliest work apart from this was the development and administration of the questionnaire to musicians to determine a 'lexical definition' of music appreciation. At about the same time, construction of new test materials for use with school pupils was put in hand. The programme for testing in schools was planned after the new materials were virtually ready for use, i.e. nearly two years later. During the pilot studies for developing new test materials two schools were used - a genuine comprehensive school with pupils of very mixed ability and a one-time selective school now officially 'comprehensive' which still has pupils of

of/

of high calibre. These schools were not reused during the main studies. For the main studies testing in schools could not be done on the numbers involved in one academic session and was spread over slightly more than two sessions. Any one group of pupils was tested over a period of about 2 - 3 months, though some testing of absentees did take place: sometimes this was as much as 6 months after the original testing. This is not seen as a great drawback. The school testing programme was very heavy as each pupil had about 8 hours testing. Although this was group testing, there were 7 separate groups tested to keep group numbers as small as possible. In addition, there was absentee testing and time spent simply making good relations with the schools. Testing of music students in the Royal Scottish Academy of Music was spread over three years which overlapped with the testing in schools.

The Subjects used: Questions of Sampling

The school pupils: It was necessary to decide what number of school pupils to use and the kinds of schools to draw them from. It was recognised that the time required for carrying out the testing programme would be considerable since the pupils were to do personality tests as well as music tests and since some information about home background was also to be gathered. Yet it would be pointless to have an ambitious testing programme but to base the analyses on the results of a small number of subjects.

To be of maximum value, it was felt that the school pupils participating should ideally range from the musically unable and disinterested to those for whom music was a major part of their life. Third form pupils were chosen and used since they would be mature enough to tackle all the tests and questionnaires. Pupils in the more senior classes were, generally, not available because of their preparations for Certificate examinations.

A number of schools were approached and initially the head teachers of 6 agreed to allow their pupils to take part. However, for a variety of reasons, only three schools did co-operate in the end. Nonetheless, they did provide the range that was required. One is a junior high school with a mixed catchment area. By the 3rd year the top pupils in this school have been "creamed off" to go to the senior high school. This senior high school provides the second of our schools. Although the catchment areas of the two

two/

two schools are not identical it is probably not unfair to say that overall the two schools had a population that was representative. There may be a slight bias favouring higher social classes and levels of ability, but this was not thought to be a serious problem. The third school used had recently changed from being a highly selective school to being a territorial comprehensive. Our 3rd form pupils, for the most part, entered the school under its former régime. This school has a strong music tradition and provided a 'musical group' of pupils who were either members of the school's first orchestra or who planned to study music as a certificate subject - or both. Our sample had undoubtedly a higher proportion of musical pupils (no matter what criterion might be chosen) than would be found in a random sample drawn from schools in the local education authority used. This is however in accord with our intentions, since the proportion of musically talented, or concert-goers, or instrumentalists is usually so small that in statistical analysis their influence is unfortunately negligible. Our sample can be thought to cover the usual range but to be selected so as to be less skewed with the consequent benefit that it is more appropriate to base statistical work on. The total number of pupils who provided results was 200. This was rather less than the number involved in the testing programme since one of the 8 original groups of pupils had to be abandoned. (Some of their results were felt to be unreliable. For example some of the testing was seriously interrupted by staff coming in to take out individual pupils who were apparently urgently required for some other purpose. Moreover the complete programme of testing could not be completed for this group in the available time.)

The testing for any one group of pupils was spread over a number of weeks and inevitably there was some absenteeism. Where 'absentee testing' could be organised, as with the personality testing, it was. However, because of the form of administration, it was impractical to follow-up more than a small number of pupils who missed music tests. As a result most of the statistics are based on numbers a little less than 200. The precise number depends on the particular sets of data required, but it typically is about 90% of our sample of 200. This is a perfectly acceptable figure and the bias introduced through losing around 10% of our population will be negligible. A comparison of results of tests which suffered little absenteeism and those that suffered relatively badly, has enabled a check on this bias to be made in a few instances, and there is nothing to suggest that any significant distortion of the results has occurred as a result of the absences.

The music students: The Royal Scottish Academy of Music and Dramatic Art personality testing was carried out over a period of 3 academic sessions. However the problems of testing were very considerable. Whereas in school, pupils were effectively instructed to co-operate, in the Academy such coercion was felt by the staff to be unreasonable. There were also very considerable difficulties in contacting the students since all, or virtually all of their tuition - even in theoretical topics such as 'Harmony and Counterpoint' - is individually organised and they have few formal timetable commitments.

Since the total number of music students is relatively small, under 300, ideally the whole of the student body would have been given the personality tests to do. Alternatively, some complete group, such as final year students, would have been used.

A decision not to use first year students was made when it was discovered that the wastage rate is fairly high.* To provide as rational a procedure as possible for choosing our sample, we decided to use the results of students who in 1973 - 1974 were in Year II or Year III of their course, or who were post-diploma students who were in Year IV, or even Year V. After allowing for dropouts early in the session there were 139 students on the roll. All of them (with the exception of a tiny handful whose attendance was extremely erratic) were invited to assist me by doing personality tests and eventually the results of 82 students were obtained (59%). Although students at different stages in their course were all equally well (or badly) represented, the different courses were not equally well represented. (See Appendix 2 for detailed breakdowns.)

The main consequence of this is that pianists and singers are over-represented and other instrumentalists under-represented since the students on the D.R.S.A.M.** course, the most poorly represented, study a wider range of instruments than those on the D.M.E. course (the only other sizable course). The great majority of the D.M.E. students have taken 'piano' as their 1st study with 'singing' their 2nd study, or 'singing' their 1st study and 'piano' their 2nd study.

---

*There were 74 first year students in session 1972-73 but only 57 in the second year in session 1973-74. This implies a dropout of 23%. This situation is, in fact, slightly worse since some of the 57 in the second year in 1973-74 were new entrants who had not been in the first year the previous session.

**The D.R.S.A.M. course prepares musicians for the Diploma of the Academy. Holders of this qualification usually intend either to be performers or to be instrumental teachers operating privately. The D.M.E. (Diploma in Musical Education) is designed for intending teachers.

The students at Jordanhill provided greater numbers. As with 'Academy' students no compulsion could be used to insist that personality testing was done, but the different College situation not only made the administration of tests very much easier to organise, it also enabled social pressures to be more effective in helping students to do the testing.

Results of 183 students have been accumulated over 7 academic sessions. Since there has been an average of just over 30 students, this represents a success rate of about 83%. As far as has been ascertained, no special bias has resulted from those who have been 'lost'.

Choice of Assessment Techniques for this Research

The school investigations: The choice of assessment techniques to use for this research posed problems and the topic requires discussion. For our school pupils it was imperative that a comprehensive testing programme be employed. Our factor analytic study was to differ from earlier ones in its breadth. One particular difference was considered especially important. In most previous studies the raw data has been test results. However, since very many writers suggest that music appreciation is not simply a cognitive process, we determined that there would be more than just test results for our data.

Since music ability and appreciation may overlap or be related an ability test was required. The Wing battery was selected (i) because it is highly rated by virtually all authorities, (ii) because it has been used widely and there is, therefore, a body of information which may provide useful comparisons, (iii) because it does include 'appreciation' tests, and (iv) because it was available. The Seashore tests were considered since the 'atomic' approach might have been useful for this study. However its poorer reliability and its known overlap with the Wing test made it a poorer choice. The Gordon Test which has many attractive features would have been included but for the fact that at the time the fieldwork was getting under way its suppliers indicated that copies were 'not available' without considerable delay.

Appreciation tests were also desirable, but to use the Wing tests alone would, it was felt, be inadequate. Long's revision of the Indiana-Oregon test was chosen since it is technically good. The available

available/

available evidence suggested it does not overlap with the Wing tests too seriously. As indicated in Chapter 3, a further appreciation test was prepared, an objective test of ability to distinguish composers by their styles.

In an attempt to assess ability to evaluate performance, Hoffren's Test of Expressive Phrasing was chosen since it was available and its only real rival, Kyme's Test, was not.

To deal with the individual's response to music, the semantic differential technique was selected. The disadvantages of using the type of approach adopted by Myers (1927) and Vernon (1933) and Valentine (1962) have been discussed. There is no doubt that if such a technique had been used successfully it would have provided most interesting results. However, it was felt that "to use it successfully" would have been so time-consuming as to have been counter-productive.

We should point out that with the semantic differential, acceptable results were not available from all the schools. For the most important analyses, incomplete and rather 'suspect' results from two of the schools have been ignored. This leaves results from 88 pupils who range from the musically highly talented to the musically disinterested and naive. The range of musicality is great but the overall level is distinctly higher than would be found in most schools. The validation of the technique is based on the results of 173 pupils, the 88 referred to above plus 85 who did the test during the pilot study stage.

One further approach was used. This was a questionnaire investigating musical background, experience and interests. It was developed from Long's "Inventory of Music Experience and Training" (see Chapter 6). The questionnaire covers topics such as range and depth of performing ability, activities as a performer, interests as a listener, musical tastes as well as providing information on family background.

Personality was tested using two instruments, the Junior Eysenck Personality Inventory (Eysenck, 1965) and the High School Personality Questionnaire (Cattell and Cattell, 1969).

Investigations involving music students: With the students at both Jordanhill College of Education and the Royal Scottish Academy of Music, there was no time for music testing and relatively limited time for personality testing. At Jordanhill two tests were used. The Eysenck Personality Inventory (From A) (Eysenck and Eysenck, 1964) and the 1968 Edition of the

the/

the 16PF (Form A) (Cattell et al, 1970). These are widely used tests and we employed the most up-to-date versions available. The school pupils' tests are parallel versions of these 'parent' tests - a fact which enables valid comparison to be made between school pupil and student results. The students at the 'Academy' did the same two personality tests as the Jordanhill students, but in addition they were asked to complete the Bell Adjustment Inventory (Bell, 1962).

CHAPTER 6

TEST AND QUESTIONNAIRE DEVELOPMENT

Development of a Questionnaire inquiring into Musicians Concepts of 'Musical Appreciation'

Aims and nature of the questionnaire: The purpose of the questionnaire was to investigate whether there was substantial agreement between musicians regarding the term 'musical appreciation'. It was felt that differences between writers on the topic might exaggerate the real situation. It was hoped there might be a reasonable level of agreement among ordinary musicians where there is little among musicologists, aestheticians, psychologists and the like. Boosting this hope was the belief that some of the disagreement evident in the literature derived from the fact that at different times, different views on the nature of music appreciation may be current.

The questionnaire was constructed for musicians: all who would complete it would be qualified musicians. Of these a number would be doing teacher-training, though some would be drawn from other areas of employment, e.g. players in orchestras based in Scotland. It was hoped that the target population would both be knowledgeable about music and also concerned with such issues as what music appreciation is, even though they would not all be involved in educational matters.

It was decided to use a fairly highly structured technique so that it would be easier to recognise areas of agreement or disagreement. In format and administration the questionnaire resembles 'Likert' scales. There were felt to be two major objections to asking direct open-ended questions, such as, "What is music appreciation?". First, the answers might have omitted, through pure oversight, possibly relevant topics. Second, answers would, at best, indicate what is included in music appreciation; they would not indicate what is not, although this can be just as important. Over and above these objections is the fact that responses are difficult to compare and treat in any quantitative manner when they result from such an open-ended approach.

With the 'Likert' format the subjects were asked to what extent they agreed with each of a number of statements. To answer they used a five point scale ranging from 'strong agreement' to 'strong disagreement' through 'agreement', 'uncertain' and 'disagreement'. The statements were culled from the writings of musicians, music educators, philosophers and psychologists. The material reviewed in the 4th section of Chapter 2 was the prime source source/

source for this. The specific statements were chosen from the more readable writings, especially where it was possible to take extracts out of context without their becoming unintelligible. They were also chosen to represent fairly extreme viewpoints.

It should be noted that there was not a full and rigorous use of Likert technique: indeed this would have been inappropriate. This point is important because in many questionnaires there is a desire to get at one opinion or attitude, from many questions. Here, on the other hand, we are engaged in a much more exploratory study and must expect, and look for, many genuinely different kinds of opinion masquerading under the same generic term, 'music appreciation'.

Construction of the questionnaire: The review of the literature revealed that there are a number of relatively distinct lines of enquiry necessary in an investigation of the type proposed and undertaken. The four principle areas covered in the questionnaire are:

1. Is an emotional response necessary/desirable for music appreciation?
2. Is an intellectual understanding of the music necessary/ desirable?
3. To appreciate music need one find its meaning? And of what nature is any meaning?
4. What relationship, if any, is there between the above three?

Within each of these main areas there are many potentially separate issues. To prepare the questionnaire, some statements were used in their original form, some were negated. A small number were modified in relatively trivial ways. For example, the statement, "Every great melody has got a meaning" was used in the questionnaire, but so too was the derived statement, "Every great melody has got significance". A number were based closely on the work of a given writer but were freshly written for the questionnaire where there was no quotation that neatly encapsulated the point at issue.

After a draft of the questionnaire had been prepared, it was scrutinised by a highly skilled musician with a deep interest in this matter.* matter/

*Mr. W. Norris, Principal Lecturer in Music at Jordanhill College

matter. He commented on it and suggested a number of minor alterations and some additions (such as the addition of 'significance' statements to supplement the 'meaning' statements referred to above - see items 2 to 7, Appendix 3).

The final step was to prepare the questionnaire as it would be used. Apart from making any necessary modifications to the statements in the draft, instructions for carrying out the rating of the statements were prepared. So too was a generally worded statement about music appreciation which provided a justification for the questionnaire for those who would complete it.

No formal validation procedures were used. Indeed, because the purpose of the questionnaire was to explore different beliefs about the nature of music appreciation, validation would have been a meaningless process. However, it is recognised with hindsight that there were certain imperfections and omissions - for example 'programme music' was not distinguished from any other music, yet this distinction could have relevance for the items about the meaning/significance of music. Despite this, we firmly believe that the results obtained are trustworthy and would not have been significantly different had a modified version of the test been used after a validation.

Appendix 3 contains a copy of the questionnaire complete with introduction and instructions in the exact format as used. Included in Appendix 3 is a copy of the full results: these are discussed in Chapter 7.

Development of an Objective Test of Ability to Distinguish Composers by their Style

Origins and rationale: Westland in a paper (1967) which discusses the role of the psychologist in the field of aesthetics points out that one of the roles of the psychologist is to devise tests and that these in general fall into two classes, "those which attempt to measure artistic ability, and those which attempt to measure aesthetic sensibility or sensitivity". He points out that, "those tests which claim to measure aesthetic 'sensitivity', 'sensibility', or 'appreciation' - whatever word may be used - bring us especially close to the problem of what is meant by objectivity since the very claim appears to presuppose that aesthetic worth has in some way or another been scientifically defined in the sense of having itself been measured." Westland argues that existing tests are not objective because the correct responses to the test items are established by taking a consensus of the judgements of 'experts'. This involvement of value judgements in existing aesthetic tests prevents them from being thoroughly objective and completely within the scientific tradition. Who dares say that the person who gives unconventional responses may not have the 'truer' insights? Future experts may well disagree with today's!

Westland pointed out that he had produced a test of 'sensitivity' or 'appreciation' which was objective as its scoring was free from subjective judgement. This test (a test in the area of English literature rather than Music) consisted of a number of literary selections by various authors. His subjects were asked to match the selections by common authorship. As the subjects were being asked to make decisions on matters of ascertainable fact the tester was able to do the scoring according to these facts. Westland's results (although rather tentative) suggested that, "there may well be a genuine discriminatory ability". The technique, which enables an ability connected with aesthetic experience to be isolated and measured in a clear-cut unambiguous manner, is obviously as applicable to Music as to literature.

As there was no existing test which is both objective and yet deals with aesthetic experience, it seemed appropriate to construct one. (It might be noted that the technique proposed by Westland and adopted by ourselves differs quite radically from that used by Tyler (1946) in her "Exploratory Study of Discrimination of Composer Style".)

Planned nature of the test.* It was decided that in format the test would have to be a paired-comparison test. Such a decision was necessary because it is unreasonable to expect any subject being tested to hold in mind three or more musical extracts so as to compare them all. This, of course, is simply to face up to the fact that music exists in time rather than in space, and that one cannot recapture time - or music - that has passed. At best one can re-live it in one's memory. However as this test was not designed to be a test of memory but to be one of discrimination between composers, the format had to be chosen so as to ensure that minimal demands were made on memory. It might be noted in passing that this same problem has been resolved in the same way by most authors of music tests. It is however not an ideal solution since in each item there are only two possible responses (i.e. either the composers of the two musical extracts being compared are the 'same' or they are 'different'). This allows chance to have an undesirably large effect on the total scores thus reducing the 'reliability' of the test.

Another problem relating to the format chosen is that the greater the length of each of the musical extracts being compared, the more 'memory' can become a problem. On the other hand, the shorter the length of the musical extracts, the less likely they are to capture the flavour and style of the composers.

It was decided that all the musical extracts should be from 'serious' or 'classical' music, and not from jazz, 'pop', light music, etc., etc. Ideally many kinds of music would have been used. But it was felt that a comparison of a 'pop' composition and a 'serious' one would be too easy. Yet if some items demanded comparisons of different 'pop' pieces and others of different 'serious' pieces, it is possible that the test would not prove reliable. It was with some reluctance, therefore, that the restriction to 'serious' or 'classical' music was made. Were it possible, other parallel tests would deal with other types of music: this is a project which goes beyond the resources of this investigation. The number of composers and and/

---

*Acknowledgement must be made for the help I received in the work of constructing the test material from Mr. R. M. Gould. I outlined the nature of the proposed test, I decided the criteria by which items were constructed and evaluated for inclusion, and I suggested the composers and styles that should be represented. However, Mr. Gould and I were both involved with selection of musical extracts. It was he who tape-recorded them so as to make two initial versions of the test, though I produced the tape for the final version. The testing using the 'try-out' versions of the test and all subsequent work was organised and carried out by myself as was all the item analyses and the statistical work to evaluate the test.

and styles had to be restricted for otherwise the test would have needed to be of inordinate length. Nevertheless it was felt important that we should not be restricted to music of the 18th and 19th centuries. Consequently some early music as well as much 20th century music is represented. From the list of compositions used in the try-out test material (see Appendices 4 and 5) it will be seen that considerable variations in style were present. Whilst this is undoubtedly of value musically, the prime consideration, it can be a danger in terms of test construction. The wider the range of musical styles, the more likely that different skills/abilities are required in distinguishing them, and the more likely that the test will not be 'reliable'.

It was not possible to ensure that all major composers and/or styles of music received a proper representation in the final version of the test. Even if it were possible to decide at the beginning what constituted 'proper representation' - and we do not believe it is, for this is a value judgement where even 'experts' would be likely to disagree strongly - there would still be two reasons to explain the impossibility of such 'proper representation'. First, and more important, the selection of items for the test must take account of the results of item analysis and the balance of items must be expected to alter when non-discriminating items are removed. Second, the range of available music was inevitably limited: this was especially so since the original recordings needed to be technically of quite a high standard. This placed quite a real restraint upon the selection of items.

The following criteria provided 'guidelines' during the stage of making up the test items.

1. Each extract must be typical of the composer's style.

2. Where the two extracts in an item are by the same composer, they should be recognisably similar in style.

3. Where different composers' works are used in an item, they should not be more similar in style than two different extracts by the same composer in an item.

4. Where possible, extracts should be selected so that subjects would not recognise (be able to name) the composer of either extract.

5. Subjects should be able to listen to just sufficient of the music to be able to assess its characteristics and style to allow the comparison of the musical extracts to be as valid as possible.

6. Each extract should be about half a minute in duration.

It is recognised that these are not objective and it would be a matter of opinion as to whether a criterion had been met. Nonetheless, they expressed our intentions. The worth of the items would eventually be assessed by item analysis, not by reference to these criteria.

A realistic decision had to be made regarding the number of test items that could be used. Since the test would be used in schools, it had to be designed so that it could be administered in a typical school period: in many schools this is only 35 or 40 minutes. To allow for such necessary practical, but time consuming, activities as getting the class settled, issuing answer sheets to pupils and getting them to put their names on them, the test itself could not last more than about 30 to 35 minutes. As each item consisted of two musical extracts and time had to be allowed for instructions about the test, this meant the limit had to be about 30 items.

This restriction necessarily applied both to the try-out versions of the test and to the final form that would be derived from the try-out versions. This practical restriction is unfortunate since the test would be more reliable if it were longer.

Secondary school pupils at 3rd year and higher levels are the target population for which the test is designed. It was felt that it should be capable of discriminating amongst those who came from 'non-musical' backgrounds and who had little interest or ability in music and also amongst pupils who had a greater involvement with music, such as those preparing to take S.C.E. examinations in Music. It would not be used with pupils of very low ability.

Procedure for developing the test materials: It was decided to produce a test to try out in an initial pilot study. This would provide results that would indicate whether it was practical and worth while to proceed further with this test development. The criteria for deciding if it was worth while would be that -

1/

1. The test, as a whole, did successfully discriminate among the pupils.

2. The items were of a fair standard when the results of item analysis were considered.

3. Comparison with other tests showed it was not merely measuring a skill for which a test already existed.

It was felt that if this first version of the test proved to be promising, it would provide a basis for developing a final test. It was, however, (realistically) assumed that the first version would be inadequate in a variety of ways. Therefore a second stage to follow on the successful completion of the first, was planned. In it a parallel form of the test would be produced and it would attempt to remedy, where possible, any faults in the first form of the test. It was hoped that in the total stock of test materials there might be sufficient 'good' items for a final version of the test to be made up. It was, therefore, necessary to plan that both versions of the test be tried out on the same pupils so that meaningful item analysis could be carried out.

It might be noted that the two parallel forms were not both produced at the start. The reasons for this were threefold.

1. The schools being used initially were only willing to allow a limited time to be used for a completely new test whose merit was not established.

2. The amount of time making up a test of 30 items is quite considerable and so it was felt advisable to try out the first version before spending further time constructing the second.

3. This procedure allowed for the possibility of benefiting from the initial testing in modifying the nature of the items in the second version (e.g. changing their level of difficulty).

This plan was followed, since at each stage the results seemed to be sufficiently encouraging to justify further development of the test. In practice it would have been desirable for more than two versions of the test to have been constructed and tried out before constructing the final version, for, as we shall see, the final version does not achieve the high technical standards normally expected of tests. It is, however, as good as some published music tests.

As cross validation of freshly constructed test material is normally deemed to be essential (e.g. see Test Service Bulletin, 47, 1954) it was decided to use the data gathered from the main study for this purpose. Such a policy is often adopted since it is not proper to adapt a test after cross-validation unless a further cross validation study is feasible. However further separate evidence of validity was also sought.

In the development of the test material several stages were envisaged and in reporting on the results obtained, these stages are treated separately. The stages were as follows:

Stage I The try-out of the first version of the test.

Stage II The try-out of both versions of the test.

Stage III The selection of items for the final version of the test.

The cross validation study was a part of the main study. It is reported on separately as the next section of this chapter.

Stage I: The try-out of the first version of the test: The test was constructed to the specification provided above. There were 30 items and the length of each musical extract was about 20". This length was determined after a 'pre-pilot' version showed that extracts of 30" were longer than necessary. The 60 musical extracts in the 30 items represent works dating from the time of Handel and Bach up to mid-20th century. (A full list of the extracts and their composers, together with the instructions for administering the test can be found in Appendix 4). The test was organised into three sections, the first dealing with orchestral music, but including concerti where the solo instrument is prominent, the second with choral/operatic music, and the third with chamber music and solo instrumental music. These sections had respectively 15, 8, and 7 items.

The test was tried out on 134 third year pupils at two schools and the item analysis is based on their results. Most, though not all, of these pupils did other music tests thus allowing some preliminary measure of validation to be attempted. The pupils tended to be a little above average in intelligence for they came from a predominantly suburban area. The nature of the catchment area was fairly mixed but has the higher social classes over-represented to some extent. The difference between the two schools is is/

is marked and it is valid to consider the schools as being streamed and as being complementary. Taking their populations together, the pupils are fairly representative of those who live in their catchment area.

From the frequency distribution of the test scores on the first version of the test, in Table 6-1 below, it can be seen that the spread of scores covers quite a wide range. This suggests that the test may well be

Score	f
26	1
25	3
24	5
23	2
22	8
21	15
20	20
19	20
18	20
17	18
16	9
15	7
14	4
13	3
12	-
11	2

TABLE 6-1 FREQUENCY DISTRIBUTION OF SCORES OF THE FIRST VERSION OF THE TEST OF ABILITY TO DISCRIMINATE COMPOSERS BY THEIR STYLE

discriminating. However, although the range of scores is wide, the standard deviation of 2.81 shows rather poorer discrimination than one might have hoped for.

One cause of the disappointing discrimination could be that the test was rather too difficult. The mean chance score is 15 and the mean score obtained was 18.76. A mean score of just over 20 would have been more appropriate. The difficulty of the test is also reflected in the fact that only one person achieved a score greater than 25 on this 30 item test. If the test, as a whole, fails to discriminate adequately, and if this is caused by some of the items being too difficult, then the situation is remediable and the test should not necessarily be deemed to lack promise. Of far greater importance are the results of the item analysis as these could reveal whether there is an acceptable number of 'good' items to provide the basis for future test development.

The item analysis was carried out using the D-technique first suggested by Johnson (1951) and popularised by Findlay (1956). In practice we used the procedures outlined in Mackintosh and Morrison (1969) and Ebel (1965). High scoring and low scoring groups were selected on the basis of the total score for the 30 items of the test. The answers given to each of the items by the members of the high scoring group were compared with the answers given by the low scoring group. This enabled two indices to be calculated, the facility index and the discrimination index.

Two separate analyses were carried out. In the first there were 36 in each of the high scoring and the low scoring groups. This is 27% of the number taking the test, the proportion that Kelley (1939) has shown gives the best reliable discrimination. In the second analysis the group size was 50. This it will be noted is considerably higher than the 33% advocated by Henrysson (1971). It is, however, in accord with the suggestions made by Anstey (1966) who has shown that the exact percentage in the high and low scoring groups matters little so long as it is between the fairly broad limits of 20% and 40%. The benefit of taking this size of group is that Phi can also be determined as an index of discrimination using the tables in Anstey's book. The use of Phi was considered desirable because it does not underestimate the discriminating power of very easy (or very difficult) items in the way that 'D' does.

It should be noted that an underlying assumption is made, when selecting the high and low scoring groups, that there is only one basic ability to discriminate composers by their style. This is true despite the fact that the test is divided into three sections. If we had assumed that there were different abilities according to the nature of the music, we could have carried out three separate item analyses for the three parts of the test as if there were, in effect, three separate tests - each of which was extremely short.

Nonetheless it is recognised that critical appreciative listening to music must involve many skills and that different items may therefore require different skills. Even if there is a basic ability underlying the ability to recognise composer style, there may well be other, possibly specific, abilities that influence pupils' performance on the test items. How important these are is revealed in item analysis since the discrimination index measures the 'homogeneity' of the test.

The results of the item analyses are presented in Appendix 6 They reveal a considerable variation in the difficulty of the items. However the majority of them fall within a more-or-less acceptable range. This raises the question of what are reasonable criteria for judging item analysis statistics. Mackintosh and Morrison suggest that the criteria which should be applied in evaluating the worth of an item from its facility value ('F' value) is that this should lie within the range .3 to .7. The situation is somewhat complicated by the fact that the items are 2-alternative items and consequently there is a 50% chance of getting any item correct by pure guessing. Many of the standard texts on objective testing make no reference to changing the criteria in this situation although low 'F' values are unlikely, and guessing must push up the 'F' values to some extent. Presumably the criteria should be somewhat higher. If a guessing correction were applied the optimal facility value would be .75 and the acceptable range would centre on this value. However as the assumptions made in applying guessing corrections are questionable, the acceptable range that would follow its application (i.e. from .65 to .85) must be considered as overcorrecting. Possibly the most realistic criteria in this situation would be to accept items whose facility values lay within the range .5 to .8. However it is recognised that the choice of these figures is as arbitrary as the choice made by any writer on the subject.

Table 6-2 gives the distribution of facility values and shows that there are items whose facility value is below .5. While these items are of questionable value, the distribution is more-or-less as would be wished.

F	f
.90 - 1.00	-
.80 - .89	6
.70 - .79	7
.60 - .69	3
.50 - .59	8
.40 - .49	2
.30 - .39	4

TABLE 6-2 DISTRIBUTION OF FACILITY VALUES OF ITEMS ON FIRST VERSION OF THE TEST OF ABILITY TO DISCRIMINATE COMPOSERS BY THEIR STYLE

In item analysis the more important index is the discrimination index. The values for D and for Phi that were obtained were rather lower than might might/

might have been hoped for. Again it is rather difficult to know by which criteria to judge these statistics. Garrett (1958) says that, "as a general rule, items with validity indices of .20 or more are regarded as satisfactory; but items with lower indices will often serve if the test is long". Our test is not long, so D = .20 would have to be the cut-off point between acceptable and unacceptable items. However Morrison and Macintosh advocate much harsher standards and suggest that values of 'D' should be at least .4 for an item to be considered satisfactory. Ebel (1965) takes an intermediate position but one which is rather closer to Garrett's. His "rules of thumb" are -

D	Item Evaluation
.40 and higher	Very good item
.30 - .39	Reasonably good item
.20 - .29	Marginal item
Below .19	Poor item, to be rejected.

We have decided to adopt fairly lenient standards and consider items whose value of D is .20 or higher as indicating that they could be fair items in a test of composer style. While our criterion of $D \geq .2$ for acceptability may seem generous, at this stage where a considerable number of items are unacceptable, values of D will be depressed since we have chosen the high/low groups for the item analysis using the overall marks which are determined by performance on the 'poor' as well as the 'good' items. It is reasonable to believe that had a further analysis been carried out using only those items that reached our criteria for F and D, the values obtained for D would be a little higher.

About half the items reach our criterion. Of the items which do not reach this fairly generous criterion, a high proportion are relatively difficult ($F < .5$) or relatively easy ($F > .8$).

The Choral/Operatic group of items tends to be easy (though one is very difficult) and only two of these items fall clearly within our acceptable range for Facility. Moreover when they reach an acceptable level of discrimination they only just do so. Of the three sections of the test this is undoubtedly the weakest.

If we ignore the Choral/Operatic section and also ignore items of extreme facility values we find that, by-and-large, our items do discriminate well enough to justify continuing in the construction of this test of composer style. Indeed about two thirds of the items left discriminated satisfactorily.

Because about half of the items in the test, as a whole, did not reach our item analysis criteria, and because there was a lack of discrimination, it was inevitable that the reliability of the test would be low. The reliability coefficient calculated using the Kuder-Richardson formula 21 was a mere .113. A consequence of this was that high correlations with other music tests were certainly not to be expected.

The correlation coefficients that were computed were found to be very low. However all but one of them were positive - a not unsatisfactory finding. The evidence here certainly does not suggest that the test is measuring some totally inappropriate ability. But there is no positive evidence to indicate any real merit in the test.

We decided to continue in developing this test despite the slightly discouraging results of Stage I.

This decision seemed appropriate since:

1. the test apparently did discriminate amongst pupils of different ability: the results would not have been obtained by chance,

2. the item analyses evidence was that, if choral/operatic music was excluded, about half the items were acceptable,

3. such correlation evidence as was available did not suggest that material was inappropriate,

4. the poor reliability was probably a consequence of faults that are remediable in later stages of the test development.

Stage II: The try-out of the second version (with the first): There were two tests employed at this stage. The first was the original 30 item test already discussed. The 2nd test, also a 30 item test, was made to the same criteria but differed in two respects. First, no choral or operatic music was included. Second, an attempt was made to have items that would be a little easier.

The tests were used with 3rd year and 5th year pupils from two Glasgow schools. One is a large Comprehensive. The other was until recently a selective 'direct grant' school but it has now abandoned its selection procedures and takes its pupils from a clearly defined catchment area: nonetheless it is not the typical Comprehensive. It is generally considered to have maintained its high standards. The two schools are geographically close, and together their pupils must be fairly representative of those who live in their catchment area. Overall there is a slight bias favouring higher social classes and higher levels of ability.

120 pupils completed both versions of the test and provided results that were used in item analyses. Slightly more pupils were originally involved but the results of pupils who did not complete both versions of the test were deliberately excluded.

The analyses are based on the results of all 60 items. They are treated as a single test though in practice administration was as two tests.

Score/60	f
50	1
49	2
48	2
47	2
46	4
45	4
44	10
43	12
42	12
41	9
40	12
39	13
38	12
37	5
36	3
35	3
34	7
33	1
32	3
31	1
30	-
29	2

TABLE 6-3 FREQUENCY DISTRIBUTION OF THE SCORES FOR ALL 60 ITEMS OF THE TWO VERSIONS OF THE TEST OF ABILITY TO DISCRIMINATE COMPOSERS BY THEIR STYLE

The frequency distribution (see Table 6-3) summarising the scores obtained reveals that, overall, the test seemed to be slightly easier than the original 30 item version: the mean score was 40.23. Only 2 of the 120 subjects achieved less than the mean chance score, and the range of scores from 29 to 50 must be considered satisfactory. Nonetheless the scores still bunch rather too tightly around the centre of the distribution. While the S.D. of 4.19 shows better discrimination than the original test, it is still not as good as one would ideally seek.

We note in passing that the reliability coefficient, determined by the Kuder-Richardson formula 21, is .25. This is still very low. However a low figure was to be expected at this stage since none of the poor items (even from the first version of the test) had been excluded. It is more important to note that the reliability is better than with just the first version. This is true even when the increased length of the test is taken into account. Item analysis was carried out using the results of the 60 items. Again two separate analyses were carried out. This was because of difficulty in deciding the scores for cutting off the extreme groups. In the first analysis the groups were of a reasonable size (the number being 37 which is 31%). For the second analysis groups of 25 were used (21%). This is rather low and the results of this analysis must be treated as less reliable.

The analyses revealed that the second set of 30 items was in many ways similar to the first. It had a similar range of facility values and about the same number of items discriminated at an acceptable level. Over 20 of the 60 items reached an acceptable level (as defined by our criteria). It was felt that this provided an adequate basis for attempting to produce a final version of the test.

Stage III: Selection of items for the final version of the test: To produce a worth while test from the 60 items used in the try-out stage it was necessary to exclude the poorest items. As the resulting test was composed of only a selection of the original items it was also necessary to check, by fresh item analyses, how the items were now performing. It should be noted that this would be only a 'paper and pencil' statistical exercise. There was not the physical production of a fresh test followed by a fresh testing schedule. Instead the old test papers were rescored taking account of only the selected items. As this changed the order of merits of the subjects who who/

who had taken the test, it changed the composition of the high-scoring and the low-scoring groups for the item analyses. It was impossible to predict precisely the effects of this. The facility values should not change significantly but the discrimination values would change. It was expected that the discrimination values of the selected items would be raised. This approach enabled us to obtain the item analysis statistics on all the (60) items. (The criteria for the item analysis had changed but the data available was unchanged.) For the unselected items it was expected that some of them would appear more discriminating and that some of them would appear less discriminating than in item analyses based on a selection of the original items. Because it was uncertain whether any of the unselected items would now reach an acceptable level of 'goodness', it was recognised that more than one step might be involved in the final selection of items. It was therefore decided to work towards the final test in (at least) two steps.

From the item analysis of Stage II the worst 21 items were rejected leaving 39. Of these quite a number were a little below the criteria of 'goodness' we had decided upon. After rescoring the test papers using the performance on just these 39 items, a fresh item analysis was carried out. The results of this are presented in Appendix 7 . They do in fact show the expected improvement in the discrimination value of the selected items. There are no cases of unselected items reaching our criteria. From this item analysis a further selection of items was made and this time all but the most marginal items were excluded. This gave 24 items as the basis for rescoring. In this final analysis the item analysis statistics (see Appendix 7) were similar to those obtained in the previous analysis. These must therefore be regarded as the 'true' ones to describe the quality of the items selected for the final version of the test, as it is improbable that further steps would change the figures significantly.

Table 6-4 below summarises the item analysis statistics from the 24 items used in the final step of the analysis.

	f_F	f_D
.9 - 1.0	-	-
.8 - .9	5	-
.7 - .8	3	-
.6 - .7	6	-
.5 - .6	7	1
.4 - .5	2	9
.3 - .4	1	5
.2 - .3	-	5
.1 - .2	-	4
0.0 - .1	-	-

TABLE 6-4 DISTRIBUTION OF DISCRIMINATION AND FACILITY VALUES FOR THE 24 'BEST' ITEMS

Both for level of difficulty and for power of discrimination these figures must be considered fair. Of the items rejected none had discrimination values of .2 or higher. However 5 items did have discrimination values between .1 and .2 and were therefore no worse than the 4 items selected that discriminated at that level.

To meet the criteria we originally laid down would give a shorter test than desired or was needed on grounds of practicality. It was unfortunate that there had not been an even larger pool of items from which to select.

Before the stage of constructing a new tape recording with the final version of the test, it was decided to check on the reliability of the proposed test using the item analysis data. At each stage in the analysis frequency distributions were constructed based on only those items selected for the analysis. These are presented in Appendix 8 . From the distribution for the final 24 items the reliability coefficient was determined using, first of all, the Kuder-Richardson formula 21. This gave a value of .52. This is significantly higher than the values obtained at the early stages of the test construction.

The use of the Kuder-Richardson formula 21 for the determination of reliability coefficients in the early stages of the test development was considered to be justified because it gives a fairly accurate estimate of reliability with a minimum of work. However the Kuder-Richardson formula 20 was now used to determine the reliability coefficient. This is the method most frequently used as it makes far fewer (unjustifiable) assumptions about the data being used. This yielded a reliability coefficient of .56. As this formula does not take account of variability of item difficulty, although it does take account of variability of the discriminatory power of items, it was decided to apply Horst's correction for variability of item difficulty (Horst, 1953). This raised the reliability coefficient to .58. The reliability coefficient we have obtained, of just under .6 does not reach the criterion of .9 that is normally considered a requirement for tests. Unfortunately it is (sadly) rare for music tests to reach the high technical standards of other psychological tests: from the evidence presented in an Appendix to Shuter's book (Shuter, 1968) the typical range for reliability coefficients for music tests is of the order of .5 to .8. Despite the shortcomings of our work, it does not compare too badly with other music tests.

Our final 24 items, that provided the basis for the item analysis and determination of the reliability coefficient, were drawn from the original 60. They were not a test as such. The decision remained whether to make a test based on these items. It was decided to do this, despite the disappointing reliability coefficient, since the resulting test would not be seriously inferior to other music tests and because it did fill a gap in the battery of tests. The decision would have been simpler had it been possible to administer other tests to provide some means of external validation. However the schools used were unwilling to give up further time for testing. (It might be noted that the schools used in Stage II were the same schools that the semantic differential was developed in. They were already co-operating very fully.)

To prepare the final test a fresh tape recording had to be made. At this stage some very minor alterations were made in the instructions for the test to make them more intelligible to all who might be tested. More important, there was the opportunity to take into account considerations other than item analysis ones in the selection of items to be used.

Twenty items selected themselves as having 'd' values greater than .2. From the remaining pool of 40 items, 9 had discrimination values of between .1 and .2. Four of these had been used in the final item analyses - but they were not all better than the remaining 5. Which, if any, of these 9 merited inclusion in the final version of the test?

In the end 6 of them were included. Of the 4 used in the item analysis, one was dropped, and 3 of the other items included because they had fractionally higher values of 'd' than the dropped item. The final choice allowed an equal number of items where the answer was 'same' as 'different'. It also allowed the composers Tippett and Sibelius to be represented. These minor improvements were considered worth while even though the introduction of a slightly higher number of dubious items (by item analysis criteria) is not normally acceptable. It was also considered advisable to have a test of 26 items rather than one of 20 items, the increase in length minimally offsetting the disadvantage of the addition of relatively poor items. (The final test is described in Appendix 9)

Cross validation from the main study: In the main study pupils were tested who had not received our test before. They therefore provide a reasonable sample for the cross validation. They ranged from the musically illiterate and uninterested to those studying for certificate exams who were members of their school orchestra or choir.

Product-moment correlation coefficients between our final test and the other standardised tests were calculated.

Test(s) the Martin test scores were correlated with	r
Total score from the Wing Battery (Tests 1 - 7)	.51
Total score from Wing's Ability Tests (1 - 3)	.51
Total score from Wing's Appreciation Tests (4 - 7)	.37
Total score from the Indiana-Oregon Test	.49
Score for discrimination of the better version in the Indiana-Oregon Test	.51
Score for recognition of the changed element in the Indiana-Oregon Test	.43
Score for Hoffren's Test of Expressive phrasing	.39

TABLE 6-5 CORRELATION COEFFICIENTS BETWEEN THE FINAL TEST OF RECOGNITION OF COMPOSERS' STYLES AND OTHER MUSIC TESTS

These correlation coefficients (Table 6-5) provide strong evidence that the test has validity, especially when the poor reliability of the test is taken into account. They are all significant at the .001 level yet they are not so high as to suggest overlap to such an extent that the new test is redundant. It is interesting to note that the correlation with Wing's Appreciation Tests is lower than the correlation with Wing's Ability Tests. With the Test 7 (Appreciation of Phrasing) and Test 6 (Appreciation of Intensity) the correlation coefficients are .09 and .18 respectively: these are non-significant. However, these tests deal with judgements of performance: as this is irrelevant in this test, the low correlations are a good sign. With Test 4 (Appreciation of Rhythm) the correlation coefficient is .24. This again may not be surprising. Appreciation of Harmony (Test 5) and Memory for Melody (Test 3) were the tests with highest values of 'r' (.53 and .49 respectively).

The Indiana-Oregon Test can yield two part scores for ability to discriminate the better two versions and for the ability to tell which element (Rhythm, Harmony or Melody) has been altered. The correlation coefficient with the latter, the more consciously analytic ability, is lower which suggests that ability on this test is based more on an intuitive, rather than a conscious, recognition of the melodies and harmonies used by a composer.

Further evidence of the test's validity is the positive correlation with a taste for classical music ($r = .41$) and the negative correlation with taste for 'pop' music ($r = -.25$). Ability on the test also correlates positively with membership of a school choir ($r = .38$) or school orchestra ($r = .33$), with attendance at concerts of classical music ($r = .36$), and with high self-assessments on instrumental skills ($r = .37$), musicality ($r = .32$) and singing ($r = .28$).

In the factor analyses carried out on the data obtained in schools, one factor emerges which reflects an ability to do the test. Other music tests tend not to load onto this factor to any great extent. In the same analyses the test has low factor loading on the factors of music ability and music appreciation. For these factors Wing's test and the Indiana-Oregon test are important. This suggests that our test of ability to distinguish composers by their style is not overlapping other music tests to any great extent - an important finding.

Discussion of the merit and future of the test: In the development of the test to its present stage we have, we believe, carried out a worth while piece of work. On a number of occasions when it was being used in schools, music teachers remarked that the test measured an ability which is important both for their 'certificate' pupils and also for their other pupils for whom music is a purely recreational subject. If this opinion is widely held, and we have been in too few schools to know, then the test has two real virtues, objectivity and high face validity. Against this there is the undoubted disadvantage of the present poor reliability of the test: it would be quite improper to believe that the test, in its present form, could be more generally used.

We feel there is sufficient merit in this test to justify further study and development in the future.

The simplest approach for developing the test would be to produce a third basic version, to try this out together with the material available at present*, and to item analyse the results so that the new good items could be added into the final version of the test. If necessary, more than than/

*Administratively it would be most convenient to use our 'final version' of 26 (good) items together with the new test. It would be more appropriate, but more work, to use both the original 30 item tests together with the new one.

than one fresh 30 item test might have to be tried out to get a stock of good items sufficiently large that the test derived from them would be reliable. It will be recognised that this is merely to adopt the same procedure we have already used. The only difference is that we are now suggesting continuing with the procedure until the test is satisfactory. This is no more than a technological exercise, but one that might lead to a test meeting the normally accepted criteria of technical goodness.

There is an alternative approach for developing the test which might be of greater value since it would indicate more accurately what we are measuring, as well as aiding the development of the final efficient test. In this the first task would again be to produce further items in another version of the test. This new material would then be tried out on suitable school pupils. In the analysis of the results, all the items would be inter-correlated and the resulting correlation matrix would be factor analysed. The pattern of factors would reveal how many different abilities are important for recognising musical styles. It would also help in clarifying the nature of these abilities and in explaining what is involved in the recognition of musical styles. The number of significant factors would determine whether or not it would be profitable to continue with the test development: the greater the number of factors, the less likely the development would come to a satisfactory conclusion.

The latter approach has not been adopted except in one study, the report of which (Gardner, 1971) is not readily accessible. However, in that study it was reputedly quite effective (see Child, 1972). This is the approach we hope to adopt in due course.

Development of a Semantic Differential Technique for Evaluating Musical Extracts

Rationale for the 'test': In music appreciation we are concerned (inter alia) with the evaluation of music, with the kinds of affective responses (e.g. liking) and with the discovery of its 'meaning' (though not a literal denotative meaning). The semantic differential technique covers a number of these points. Its origins lie in Osgood's attempts to discover the connotative, rather than denotative, dimensions of 'meaning'. And as Osgood's original work demonstrated the appropriateness of his technique in a very wide range of situations, the attempt to consider the 'meaning' of music by means of his semantic differential technique is more than justified. Of the dimensions he discovered, the most important is 'Evaluation'. This is recognised as one aspect of music appreciation. However, from the 'scales' which load onto this evaluation factor most highly we see that this includes 'liking'.* Again this is one of the areas which many consider important in the study of music appreciation.

One special advantage of the semantic differential is that it uses a fairly large number of 'scales' for each 'concept' (in this case, piece of music) to be rated. It is therefore an advance on the kind of approach where few 'scales' are used. There is little sophistication in merely asking to what extent a piece of music is liked/disliked. The use of many scales may provide a more reliable technique and possibly one with a more general applicability (for fewer people will have idiosyncratic interpretations of the words of the many scales than for the words of one, or just a few, scales). However the use of many scales poses interesting questions which only arise with a technique such as the semantic differential. For example, is the factor structure of the meaning of music the same for musicians and those who have a keen appreciation of music as for the musically unsophisticated? Or, as a more particular example, do 'liking' and 'evaluation' correlate highly regardless of one's musical ability and experience? If Tucker's work with modern paintings (Tucker, 1955) can provide a parallel, we can expect different factorial structures for the musically competent. Studies that have applied this technique have not considered such a possibility, although they have shown that the factors of meaning in music for students are the same general factors that Osgood found. This, however, merely validated the technique as a research tool for musically less able subjects.

---

*'Pleasant', 'Nice', 'Beautiful' are all scales that load highly onto the evaluation factor, and they must surely reflect 'liking'.

Edmonston (1966) makes the good point that where the semantic differential is used as a tool in research it allows more precision through allowing a greater range of statistical analyses to be carried out. The study of musical abilities and appreciation is not an area which has been so thoroughly researched already that we can dispense with the added refinement offered us in this technique.

The versatility of the method also allows it to be used in other areas of study, such as 'personality'. Consequently in this study, which is concerned with the relationship between personality and music appreciation, the technique provides a tool which neatly links the two aspects together.

Technique of administering the semantic differential: The workers (Edmonston, 1966, 1969; White and Butler, 1968; Nordenstreng, 1968; Swanwick, 1973) who have used the semantic differential with music do not describe the procedures which they employed in its administration. However, as they used university students, the problems of administration would have been different from those when giving the semantic differential to school pupils. Even the choice of scales used is only reported in White and Butler (1968) and this choice is to some extent idiosyncratic!

It was decided to develop a set of instructions and an administration by trying out different possibilities. The particular scales used did not matter to any great extent for this purpose, since the choice of scales provided a separate problem.

The particular problems which were envisaged were that the rating procedure would not be understood, that the music would not remain fresh in mind while rating was carried out on some 15 scales or that some subjects would be very slow in carrying out the rating.

Three different forms of administration (Form X, Form Y, and Form Z) were devised and tape recordings were prepared. There was much in common between these versions. In each there were spoken instructions (full copies of which are contained in Appendix 10) to the subjects indicating how to carry out the ratings. To accompany this there was a sheet on which there were examples of ratings to indicate the position on the scale for the differing degrees of aptness of the adjectives. The spoken instructions then described the form of administration by indicating such things as whether the music to be rated would be repeated, how long was available for the rating, rating,/

rating, etc. Then there followed the first musical extract to be rated. In each form the same extracts of music were employed and the scales on which the ratings were to be carried out were the same. At this try-out stage, the final task was to complete a questionnaire so that the subjects could indicate how they felt they had coped with the technique.

The format used for the administration of each of the three forms of the test is presented below.

Form X.

1. Description of the nature of the test and instructions for carrying out the ratings.
2. Music extract played. (20 - 30 secs.)
3. Silence, to allow the ratings to be completed. (2 mins.)
4. Warning that the available time was almost up.
5. Silence to complete the ratings. (10 secs.)
6. Instruction to turn to the next sheet.

After this, points 2 to 6 were repeated in sequence for each music extract.

Form Y.

1. Description of the nature of the test and instructions for carrying out the ratings.
2. Music extract played for the first time. (20 - 30 secs.)
3. Silence, to allow the music to be rated. (50 secs.)
4. Repetition of the music extract. (20 - 30 secs.)
5. Silence, to allow the music to be rated. (40 secs.)
6. Warning that the available time was almost up.
7. Silence to complete the ratings. (10 secs.)
8. Instruction to turn to the next sheet.

After this, points 2 to 8 were repeated in sequence for each music extract.

Form Z.

1. Description of the nature of the test and instructions for carrying out the ratings.
2. Music extract played. (20 - 30 secs.)

3./

Form Z - cont'd

3. Instruction to rate the music on the first scale, 'Pleasant/Unpleasant'.

4. Silence, for this rating to be done. (5 secs.)

5. Instruction to rate on the next scale, 'Heavy/Light'.

6. Silence, for this rating to be done. (5 secs.)

and similarly for all the scales, but with the music extract repeated after rating on the fifth scale and again after rating on the tenth scale.

7. Instruction to turn to the next sheet.

After this, the full sequence implied in points 2 to 7 was repeated for each music extract.

The three forms were not considered equally valid initially. Form Z was devised for fear that a substantial number of the subjects would be too slow in doing their ratings. It was recognised that the separate instruction to rate for each scale together with the naming of the scale might well prove too distracting to be worth retaining.

Choice of rating scales: The scales that were chosen for the try-out version need not have been those intended for the final version since it was the administration that was the main consideration of the try-out. However, even though no validation of the scales was originally intended, it was hoped that the scales used at this stage would be suitable for the final stage. Scales were chosen for the try-out version from scales of high validity in at least one of the following three studies; Analysis I, Analysis III, i.e. the Thesaurus analysis, and Tucker's analysis of paintings, all from Osgood's book (Osgood, 1957). Another criterion was that the scales should not apply literally to music: hence scales such as 'Fast/Slow' had to be excluded. Furthermore, the chosen scales had to appear to have some relevance with music.

'Scales of high validity' were those which had high factor loadings onto the factors that Osgood had identified. The choice of scales was thus not random, and it was to be hoped that the same factors that Osgood found might be extracted from the ratings of music because this had been 'built in' to the test. Fifteen separate scales were used. These covered the three main factors, 'Evaluation', 'Potency' and 'Activity'. Another factor was covered. This was 'Receptivity'. Although it was, statistically, quite a

a/

a minor factor, (the seventh of the eight significant factors that Osgood extracted) it seemed to have relevance for this study. It deals with 'hedonistic goodness' and, according to Osgood, its scales, "constitute a 'mode' of evaluating" and they load positively on to the 'Evaluation' factor, though the loadings are small. The 'Receptivity' scales employed had an obvious 'face validity' for music: they were 'Colourful-Colourless', 'Boring-Interesting' and 'Insensitive-Sensitive'. Table 6-6 below lists all the scales, together with the loadings obtained from the original studies.

Scale	Factor	Loading on Specified Factor			
		Analysis I	Analysis III	Tucker	Martin
Pleasant-Unpleasant	E	.82		.59	.81
Heavy-Light	P	.62	.47		.69
Passive-Active	A	.59		1.00	.79
Awful-Nice	E	.87			.88
Colourful-Colourless*	R		.27		.64(E)
Hot-Cold	A	.46	.26	.64	
Beautiful-Ugly	E	.86	.52	.51	.83
Weak-Strong	P	.62	.40		.67
Good-Bad	E	.88	1.00	.77	.86
Boring-Interesting*	R		.20		.80(E)
Calm-Excited	A		.26		.75
Worthless-Valuable	E				.79
Insensitive-Sensitive*	R		.23		.63(E)
Masculine-Feminine	P		.47	.76	.64
Negative-Positive	E		.48		.64

*These scales all had positive loadings on the Evaluation factor of between .2 and .4. With Martin their principal loading was an Evaluation.

TABLE 6-6 RATING SCALES FOR THE SEMANTIC DIFFERENTIAL AND THEIR FACTOR LOADINGS

Although the choice of scales had not been influenced by musical criteria, as they would if, for example, the scales were based on the adjectives used by music critics to describe the music and performance they have listened to, it is believed they do provide quite a wide coverage. It will be seen that more scales measure the evaluation factor than the other factors. This is deliberate. It is common practice, since this factor is the most important in that it accounts for the greatest percentage of variance in most studies. It is also important since the evaluation scales have the highest validity as measuring appreciation of music. The scales for different factors were mixed, and in the physical layout, the

the/

the significant end was varied from scale to scale.

The instructions for using the rating scales were developed from those in Osgood's original work. They were modified to make them suit ratings of music and the language was considerably simplified. (See Appendix 10.)

Choice of music: At this try-out stage the choice of musical extracts was of less consequence than ensuring that the nature of the task was understood. However, as some scales might conceivably have seemed appropriate with one piece of music but not with another, it was decided to employ essentially the same musical extracts as would be used in the final version. Moreover, since the technical problems of making the tape recorded version of a test are not inconsiderable, it was a practical convenience to make the choice of music extracts the same in the try-out as in the final version.

Although classical/serious music of different styles was represented, musical extracts were drawn from other areas of music. The list of the music extracts can be found below (Table 6-7).

		Abbreviated title*
1	An extract from 'Whistling Rufus', an instrumental piece of traditional jazz, played by Chris Barber's Jazz Band	Trad Jazz
2	An extract from Jacques Loussier's first album 'Play Bach'	'Play Bach'
3	An extract from the violin concerto by Max Bruch	Bruch
4	An extract from the 'Romeo and Juliet Suite' by Prokofief	Prokofief
5	An extract from The Four Seasons by Vivaldi	Vivaldi
6	An extract from Brahms Piano concerto No.2 (A fairly syncopated piano passage has been selected.)	Brahms
7	The second stanza of the (pop) song 'Bridge over Troubled Water' by Simon and Garfunkel	Pop or B.o.T.W.
8	An extract from Bach's Brandenburg concerto No.4	Bach

*These abbreviations are employed in later tables and to a small extent where it is helpful in the text.

TABLE 6-7 THE MUSIC USED IN THE SEMANTIC DIFFERENTIAL

The representation of musical styles was made deliberately wide, since the results can be used to measure musical preference. For the majority of school pupils this falls outwith the field of serious music. However, the number of extracts of music that could be used was limited by the requirement that the whole test takes no longer than about 30 minutes.

It was felt that the final number of extracts to be rated could be best decided after this try-out stage, when the form of administration had finally been determined.

The try-out in schools: The different forms of the semantic differential were tried out on 120 pupils in two Glasgow schools which, between them, covered a very wide range of abilities and home background. Only third form pupils were used.

Different classes were to be used for the different forms of the test. Since it could be assumed that any problems would be most acute with the dullest/youngest/least verbal pupils, it was ensured that such pupils would be represented in the sample for each form of the test.

Form X and Form Y were administered before Form Z, a deliberate piece of timetabling, and as the results were promising, Form Z was not, in fact, administered to any class.

With Form X, the most outstanding observation of the try-out was that virtually all the pupils in the class completed the ratings after only about one minute. While this was true for most of the musical extracts, it was not true for the very first one: a number of pupils needed a little assistance in the rating - they needed reminding of what each position meant, and they also needed to be reminded to rate the music using every one of the scales provided. However, after the first extract, the problems did not recur. The questionnaire results confirm these points. With Form X, in response to the question, "How well did you understand the instructions?", a majority of 66% felt, "They were a little confusing, but I didn't take long to understand what to do". No one felt confused throughout the testing, and one third of the pupils found the instructions perfectly clear.

Similarly a good majority (69%) reckoned it was, "not too difficult to use the given adjectives for rating the music". Less than a quarter found the task, "fairly difficult", and none found it very difficult. Such results were very satisfactory as indicating that if the task of rating could be adequately explained initially, there should be no serious problems with the kind of pupils I was using.

With Form Y, as with Form X, the most outstanding observation was that more time was provided than was necessary for the majority of pupils. For many pupils in the first class on which this form was used, the rating had been completed or nearly completed by the time of the repeat of the music. Because of this, and the evidence of Form X, a fresh version was produced which differed from the original version in its timing. It was tried out on two (small) classes. The timing for it was as follows:

1. Description of the nature of the test and instructions for carrying out the ratings.
2. Music extract played for the first time. (20 - 30 secs.)
3. Silence, to allow the music to be rated. (35 secs.)
4. Repetition of the music extract. (20 - 30 secs.)
5. Silence, to allow the music to be rated. (30 secs.)
6. Warning that the available time was almost up.
7. Silence to complete the ratings. (8 secs.)
8. Instruction to turn to the next sheet.

Points 2 to 8 were repeated in sequence for each music extract.

There still seemed to be a little more time than was required even with this modified version: the gap between the first and the second playing of the extracts could have been further reduced. From the questionnaire results it is clear that there was enough time, though not necessarily much to spare. When asked, "Did you feel there was enough time to do the ratings?" none of the pupils admitted to being rushed, half said there was enough time, and half felt that there was more than enough time. Not a single person felt that they had to, "hurry at the end of time to complete the ratings".

The general instructions for doing the ratings was exactly the same in Form Y as in Form X. As with Form X, there were some pupils who required some assistance after the first musical extract had been played. This too is seen from the questionnaire results.

Table 6-8/

	Percentage Frequency of Responses	
	Form X	Form Y*
1. How well did you understand the instructions?		
They were perfectly clear	34	71
They were a little confusing, but I didn't take long to understand	66	27
I felt confused throughout	-	2
2. How difficult did you find it to use the given adjectives for rating the music?		
Very difficult	-	3
Fairly difficult	22	19
Not too difficult	69	56
Very easy	9	22
3. Did you feel that there was enough time to do the ratings?		
There was more than enough time	74	70
There was enough time, but only just	26	30
There was not nearly enough time, I was rushed	-	-
4. Did the music stay fairly fresh in your memory while you did the ratings?		
Yes	84	91
No	16	9
5. Was the repetition of the music helpful?		
Yes	-	70
No	-	30
6. Did you need to hurry to finish the ratings after the reminder that time was nearly up?		
Yes	2	-
No	98	100
7. If you did have to hurry at the end of time to complete the ratings, do you think that you gave the 'true' answers?		
Yes	35	46
Uncertain	51	48
No	14	6
	N = 47	N = 73

*Figures are based on combined results for the 'faster' and 'slower' versions of From Y

TABLE 6-8 RESULTS OF THE SEMANTIC DIFFERENTIAL QUESTIONNAIRE PERCENTAGE FREQUENCIES OF THE VARIOUS RESPONSES

Comments on the results of the try-out: The general procedure for the semantic differential was found to be workable with third year pupils. The instructions and the use of the scales was not too difficult. However, there was a sizable minority who experienced difficulty initially. It was decided that when the final version came to be used, sufficient time must be allowed after the first musical extracts and before the second to enable any pupils in need of help to receive help. A parallel decision was to attempt, as far as possible, to limit the size of the group being tested unless another adult with adequate knowledge of the semantic differential was present and able to assist.

In the comparison of Form X and Form Y, it was evident that Y was superior. 70% found the repetition helpful and, possibly as a result, over 90% maintained that the music stayed fairly fresh in the memory for all the ratings, though even with Form X this was no real problem as 84% said the music stayed fairly fresh.

The time allowance with the tests was adequate or generous. Only one pupil (doing Form X) found the need to hurry at the reminder that time was nearly up. Even with the faster version of Form Y, there had been sufficient time.

Because the final question was meaningless to our pupils, the response we have may be equally meaningless. Yet it may be significant that about half the subjects felt uncertainty about their ratings. This we attribute to the novelty of the task. Our pupils did not know the 'right' answers and their uncertainty about what really constituted appropriate responses is evidenced in the results of this questionnaire item.

Development of a final version of the test: It was decided to make use of the Form Y administration for a final version of the semantic differential. However, further modifications to the timing were incorporated. The music extracts were repeated after a full 25 secs. instead of after 35 secs. The total time for rating was not altered, as 10 secs. were added to the second period of time for carrying out the ratings.

The rating scales were the same as on the pilot versions.

For the final version of this 'test', one music extract was added to those used in the try-outs. This was from Bartók's 'Miraculous Mandarin Suite', a 20th century atonal piece of music. This was included as it was felt that this type of music had been unreasonably ignored in the earlier versions. Furthermore, for the final version another 'concept' was added so that it could be rated on all the scales: this was 'myself'. Whilst semantic differential ratings are not a standard way of assessing personality, it was believed that this approach might prove useful for allowing the semantic differential ratings of music to be directly related to measures of personality.

It might be noted that the development of the final version of this test was carried out before any full validation of it. This was because of lack of the computing facilities necessary for factor analysis at the time. The decision to go ahead with the semantic differential procedure was based on two lines of reasoning. First, the questionnaire results revealed that the technique worked quite satisfactorily even with our 'poorer' third form pupils. Second, we believe that validation is, in a sense, inappropriate. Because of the lack of any substantial body of work using the technique with music, this study could be expected to provide results that would be of interest. This would be so no matter whether factors paralleling Osgood's factors eventually emerged.

In fact, analyses paralleling Osgood's were carried out after the main studies had been completed. Some of the data collected at the try-out stage was used as well as some data from the main study. These analyses, based on the results of over 160 pupils, are the subject of the next section of this chapter.

Validation: The analysis that is discussed in this section is based on 85 pupils from the try-out, and the 88 pupils tested in one school as part of the main investigation. This does not make use of all of the data available. However it was felt that analysis based on this number would be more than adequate and that further scoring and data preparation based on the other 'try-out' subjects would be much more time-consuming than the benefits would justify.

To determine whether factor analysis was worth while with our 'test', it was necessary to ascertain whether the scales were discriminating. For each of the musical extracts, 15 separate frequency distributions were calculated - one for each rating scale. From the figures (summarised in Appendix 11) it can be seen that discrimination is always satisfactory and sometimes very good.*

The differences in scores between different pieces of music were sizable. For example, on the scale 'Pleasant-Unpleasant' the mean score for the Simon and Garfunkel song "Bridge over Troubled Water" was 6.49, indicating that it was considered very pleasant by virtually everyone whereas the extract from Bach's Brandenberg Concerto No.4 had a mean of 3.92, a very non-committal score, which can be taken to imply that as many pupils found it unpleasant as pleasant.

For each rating scale the difference between the mean score for the music with the highest scores and the mean score for the music with the lowest scores was determined. In all cases the difference was at least 2.0 and with 10 of the 15 scales it was at least 2.5. On our seven point scale this is more than satisfactory and helps to confirm that the choice of musical extracts was reasonably wide-ranging.

A series of factor analyses were carried out. For the first analysis the distinction between the different pieces of music was ignored. The correlation matrix used as input for the factor analysis contained the inter-correlations from the 15 rating scales. (For each correlation coefficient there was a vast amount of raw data since there were about** 170 sets of ratings for all of the 8 musical extracts, plus over 80 sets of ratings for the 9th extract.) The procedure is fairly standard, not only because it enables a great amount of data to be used, but also because the use of different 'concepts' (musical extracts in our case) ensures that the range of scores for any one rating scale is not so narrow that correlation becomes meaningless.

---

*The semantic differential uses a seven point rating scale and for statistical convenience this was scored 1 to 7. The scoring was always in the same sense, i.e. scales which loaded onto the evaluation factor in the studies in Osgood's book were scored 7 at the extreme on the 'good' end no matter whether this was physically the right hand side or the left hand side on the rating sheets. With a seven point scale, a standard deviation of the order of 1 to 1.5 would be quite acceptable, above 1.5 could be considered good, but below 1.0 rather disappointing.

**In theory there should have been 173 sets of ratings. In practice, a very small number of pupils failed to rate a music extract on one or other of the scales. Such sets of ratings were included, as it was not desirable to ignore 14 properly done ratings for the sake of the 1 missing rating.

A principal components analysis with varimax rotation was used as the factoring technique. Only three factors had eigenvalues in excess of unity and were therefore significant. The factor loadings on these scales are tabulated in Appendix 12. Factor I is very clearly an 'evaluation' factor: Factor II is an 'activity' factor, and Factor III is a 'potency' factor. These results very neatly parallel Osgood's. The emergence of the three classic 'semantic differential' factors reveals the validity of the technique. With one exception, all the scales measure the factors in the way that would be predicted. Only the one scale 'Hot-Cold' is exceptional: it does not have particularly high loadings on to any of the factors. The loading for evaluation is higher than for activity, although in Osgood's work it measures activity.

Some writers have argued that it is not appropriate to assume that findings obtained from analyses based on a number of concepts will necessarily apply for any one of these concepts. Analyses were therefore carried out for each of the 9 musical extracts and for the concept 'self'. Although the factor pattern is not identical in each instance, it is basically similar. There is always an evaluation factor, but sometimes evaluation reveals itself in two factors - a point which is interesting in view of the fact that in the choice of scales two of Osgood's factors, 'Evaluation' and 'Receptivity', provided our evaluation scales. There is usually also an activity factor and a potency factor. Furthermore, <u>all</u> the factors produced in the 10 analyses can be equated with an aspect of evaluation or with activity or potency: there are no factors demanding a different interpretation. (The full results of these 10 analyses are presented in Appendix 13 together with our interpretation of the nature of each of the factors.)

Development of a Questionnaire Investigating Musical Background, Experience, Activities and Interests

The needs to be met: the content of the questionnaire: The battery of tests assembled for use with school pupils includes measures of musical ability and appreciation. The semantic differential provides one means of investigating response to music. But there is a need for information about pupils' general musical background. The questionnaire was devised so as to meet this need, since no available questionnaires were totally suitable.

Several distinct areas required investigation. The first concerned our pupils' ability as executants. There is no straightforward and reliable way of discovering level of achievement on an instrument for pupils of the type involved in this study. Only a minority of those who can play an instrument are entered for examinations (such as those of Associated Board of Music). Many are uninterested in examinations, especially those who are more or less self-taught, and not all had studied instruments which are commonly examined. It was therefore decided to ascertain for how long a time our pupils had been playing their instruments and whether they still continued to do so. However, ability to play an instrument is no guarantee that it will be played - motivation or opportunity may be lacking. It was decided therefore to find out what playing experience our subjects had. As the most obvious playing experience for many would be in a school orchestra, this would need to be probed. However, some instruments are not orchestral instruments and some are only occasionally played in/with an orchestra (e.g. bagpipes, saxaphone, piano). In consequence, it was necessary to investigate what other music making activities our pupils engaged in. The distinction between activities provided by the school (or some well structured organisation) and those which are the product of our pupils' own efforts, seemed specially important since a much greater motivation to perform could be assumed in the latter case.

So far we have almost implied that music making necessarily meant playing some instrument, but this, of course, is not so. Singing must not be ignored. For the questionnaire, singing and choir membership provided relevant topics to investigate alongside executant ability on musical instruments.

A second topic which demanded attention was the amount and nature of music making in the home. For this, questions about the performing (and singing) skills of the parents and siblings were required. Possibly possibly/

Possibly more important, was to get information about the frequency of family music making. Essential information about the musical instruments available at home was needed to complete the picture here. This was especially so since (in the education authorities we were using) many pupils are taught instruments in school even though they do not possess their own instruments. While the schools usually loan instruments to pupils in such instances, this is not always the case.

A third major area requiring study concerned our subjects' listening habits. 'Musical taste' therefore had to be considered. Questions about taste were included in the questionnaire, since the semantic differential would give too little evidence on this matter, although it is recognised that the direct approach is likely to provide the more valid responses than the indirect questionnaire approach. There was also a need to enquire into the activities our subjects engaged in as listeners, for example, whether they attended concerts, and if so what kind of concerts.* Related to this was the problem of what our pupils listened to at home. Information gathered earlier suggested that all pupils have radio and television at home, but that there are differences regarding ownership of record players, tape recorders and the like. Since pupils coming from homes lacking the 'hardware' for reproducing music are at a disadvantage, as far as listening to music is concerned, an investigation of sound reproducing equipment was felt to be quite essential.

A final series of questions were felt desirable, though not essential, to investigate our pupils' own self-assessments of their musical talents. While data of this type is notoriously unreliable for measuring abilities, it was thought that such data might throw some light on our pupils' attitudes to their musicality. The subjectivity of the approach was considered a potential virtue, not an automatic disadvantage.

The development of the questionnaire: The questionnaire was modelled on the "Inventory of Music Experience and Training" used by Long in his standardisation of the Indiana-Oregon Music Discrimination Test. However, it suffers from a number of minor drawbacks.

1. Some of the items are too difficult, e.g. one of them refers to "Leider (Art Songs)".

2. The format for the items regarding musical tastes is rather awkward. There are five items, and in each 4

4/

*Pop concerts, concerts of Folk music, orchestral concerts of serious classical music, etc.

4 different types of music are named. Of these the two most enjoyed must be ticked. (See example on page 63.)

3. Some of the words and phraseology are transatlantic. For example, "How well do you sing? (Check one)

   ( ) Can't carry a tune

   ( ) Can just carry a tune.", etc.

4. The physical layout is cramped and bad. Not only does this encourage careless errors, it often allows insufficient space for answers to openended questions such as what kind of musical group one is a member of.

5. There are some omissions due to being American, rather than Scots. For example, among the instruments listed, as possible instruments in the home, are electronic organ and 'sax', but not bagpipes.

All of these are quite trivial points and easily righted.

The items for Long's original 'Inventory' were reshaped and further material was added. The whole inventory was made rather more intelligible for our Scots 3rd form pupils by simplifying, where possible, and by making the physical appearance much cleaner. Care was taken to ensure that the questions were highly directive so that responses would be easy to code for purposes of analysis.

No formal try-out of the questionnaire was undertaken, though an early version of it was used, on a small scale, in a number of schools,* before our fieldwork got under way. The feedback from this rather informally organised work led to one or two minor improvements which were incorporated in the final version. A copy of this final version is to be found in Appendix 14.

It might be noted that in the use of the questionnaire in the main study, any problems experienced were rarely due to any deficiencies in it. We are persuaded that the questionnaire is perfectly satisfactory.

---

*Mainly by our music students from Jordanhill College.

PART III

PRACTICAL INVESTIGATIONS INTO THE NATURE OF MUSICAL APPRECIATION

CHAPTER 7

AN ATTEMPT TO DERIVE A LEXICAL DEFINITION OF MUSICAL APPRECIATION

Purpose, Administration etc.

The aims of this investigation have already been discussed - a search to find if ordinary musicians, as distinct from 'authorities', are in basic agreement as to what the term music appreciation means. The construction of the questionnaire, too, has been described.

Although 33 musicians tackled the 'questionnaire', they did not all answer all of the questions. With some of the items, particularly the parallel items concerned with the 'meaning' or 'significance' of music, quite a large number of subjects responded to one or other form of the question, but not to both. There were also a number of people who simply missed out questions. In some cases, though not all, they wrote in notes explaining why they could not respond. Although the questionnaire was generally considered difficult and time-consuming, informal discussion with many of those who tackled it leads us to believe that the great majority have given it their serious consideration.

In analysing the results, items are grouped according to topic. These are,

Is an emotional response desirable?

What should be the nature of any emotional response?

Is intellectual effort and understanding desirable?

What are the required intellectual skills?

What is the relationship between understanding and emotional response?

Should appreciation involve a consideration of performance?

Should appreciation imply an evaluation of music?

Does music have 'meaning' or 'significance'?

How/Where is the meaning or significance of music to be found?

Has music a moral or spiritual value?

For each topic the relevant statements from the questionnaire and the responses to them are tabulated before this data is discussed.

Results and Discussion

Is an emotional response desirable?

	S.A.	A.	U.	D.	S.D.
Some pieces of music can be appreciated even when they evoke little or no emotion in the listener.		27 82%	2 6%	3 9%	1 3%
It is the effect that music produces that is important, not an understanding of how that effect is achieved.	2 6%	19 60%	2 6%	8 25%	1 3%
When listening to music no one should constantly be in an analytic frame of mind (unless he is a professional music critic).	6 18%	20 61%	1 3%	5 15%	1 3%

From the responses to the first statement above, it is clearly evident that there is substantial agreement that an emotional response to music is not essential in appreciation. Yet a very clear majority believe that it is the **effect** that music produces that is important and that an analytic approach to music is unnecessary or undesirable. Possibly the best way of reconciling these apparently divergent viewpoints is to posit that the arousal of an emotional effect is highly desirable even if it is not essential in appreciation. An alternative explanation is that the effect that music has on the listener is important, but that this is nothing to do with appreciation. Implied by this latter explanation is a narrow definition of appreciation. Although this is a reasonable explanation if one merely considers the results quoted above, we believe that it is less plausible than the former

former/

*All the tables in this chapter have the same format. The numbers in the body of the table indicate the number of people giving the response indicated by the heading. In the headings 'S.A.' stands for 'Strong Agreement' with the statement, 'A' for 'Agreement', 'U' for 'Uncertain', 'D' for 'Disagreement' and 'S.D.' for 'Strong Disagreement'. Both raw frequencies and percentages are quoted. Percentages are based on those who did respond: for a few items the 'non-response' rate is quite high.

former explanation when viewed in the light of the questionnaire as a whole.

The purpose of the questionnaire was to inquire into music appreciation and this had been clearly expressed in its instructions. This argument also looses some of its force from the fact that for 13 of our 33 respondents enjoyment of music is sufficient for its appreciation. (An added complication may arise from the use of the words 'effect' and 'emotion'. It is conceivable that some respondents believe that music can have an effect that does not involve emotional arousal: this very much depends on what 'emotion' is.)

It is interesting to note that of the six people who felt that listeners should, "be in a constantly analytic frame of mind when listening to music" (Curwen, n.d.), three felt that understanding how the effects of music are achieved is <u>less</u> important than the subjective experience of music. This apparent inconsistency possibly typifies the confusion in this area.

<u>What should be the nature of any emotional response?</u>

	S.A.	A.	U.	D.	S.D.
Simply to <u>enjoy</u> the sounds of music, is to appreciate it. Enjoyment is sufficient.	2 6%	11 33%	4 12%	10 30%	6 18%
If the feelings or emotions evoked by music are not wholly pleasurable ones, then the listener has failed to appreciate the music.	-	-	1 3%	18 55%	14 42%
"Although 'liking' does not constitute 'appreciation', <u>it is nevertheless necessary that appreciation should include liking</u>."	3 9%	8 24%	1 3%	13 39%	8 24%
Appreciation of music lies in the listener experiencing the same emotion as the composer wished to express, no matter whether it is pleasure, awe, distress, horror etc.	-	12 36%	3 9%	13 39%	5 15%

Although most believe that an emotional response to music is desirable, some even claim this is sufficient (if enjoyment implies an emotional response). However the crucial question here concerns what kind of response is desirable.

Certainly pure unalloyed enjoyment is not the essence of the appreciative response, for no one agreed that if the effect of music is not wholly pleasurable, then the listener has failed to appreciate it. In other words, appreciation is possible even where pleasure is not total. Although appreciation cannot be equated with achieving pleasure from music, one might expect that appreciation should include liking - as one of several aspects. Yet only a minority agreed that, "it is necessary that appreciation should include liking".

An alternative line of inquiry suggested that the appropriate emotion in the listener would be that which the composer wished to express, be it pleasure, awe, horror or what you will. But more people disagreed with this than agreed with it.

In conclusion we are forced to admit that even though some kind of emotional response is accepted as desirable, there are no generally held opinions as to the nature of this response. Unless different people each have specific clearly held but different ideas as to the appropriate experiences brought about by music - and we have no evidence to suppose this - then it seems implicit that different kinds of response can have validity. What we have failed to identify here is whether it would be agreed that for different pieces of music, there are different responses that are appropriate. It is conceivable that for any given piece of music there is an appropriate emotional effect but that for different pieces of music different effects are appropriate.

Is intellectual effort and understanding desirable?

	S.A.	A.	U.	D.	S.D.
"Appreciation of music is pure spontaneous pleasure unmixed with intellectual effort."	1 3%	3 9%	4 12%	18 55%	7 21%
Appreciation of music implies both understanding the music and being stirred emotionally by it.	8 24%	14 42%	2 6%	8 24%	1 3%

That some intellectual effort is essential for appreciation of music was almost universally agreed. Only 4 of the 33 agreed that, "appreciation of music is pure spontaneous pleasure unmixed with intellectual effort". However However/

However it would be possible to disagree with this statement because of the implication that appreciation involves 'pure spontaneous pleasure' rather than because it involves 'intellectual effort'. Nonetheless a clear majority did believe that appreciation of music implies understanding the music as well as being stirred emotionally by it.

It is desirable to assess the importance of the intellectual side of appreciation. It could be argued that if both understanding music and being stirred emotionally by it are constituent parts of appreciation, then it is not possible to assess the relative importance of these two aspects. However our subjects have willingly attempted to assess their relative importance and we believe that it is quite valid to do so. As we reported (page 126) 21 of our subjects agreed that the effect produced by music, rather than an understanding of it, was important. Only 9 disagreed.

Identifying which of the very many possible intellectual skills are required for understanding music is of much greater import than recognition that appreciation involves some intellectual effort.

What are the intellectual skills necessary for appreciation?

	S.A.	A.	U.	D.	S.D.
Appreciation cannot occur without understanding of the form, and other technical aspects, of the music.	1 3%	6 18%	2 6%	17 52%	7 21%
An ability to remember the melodies and rhythms in a piece of music is not necessary for appreciating it.	4 12%	20 61%	2 6%	6 18%	1 3%
Memory for melody and rhythm is essential for recognition of the form of a musical composition.	5 15%	23 70%	-	5 15%	-
Basic musical abilities are needed before musical appreciation is possible.	2 6%	9 28%	4 13%	14 44%	3 9%
Being aware of the different colours and textures is more important than recognising the form and structure in a piece of music.	2 6%	11 34%	9 28%	9 28%	1 3%
Those who are ignorant of the times and culture in which a composer lived, cannot fully understand his music.	3 9%	19 58%	2 6%	7 21%	2 6%
Some knowledge of the history of music is helpful when listening to a piece of music.	7 21%	25 76%	-	1 3%	-

There is no clear concensus as to what precisely are the desirable intellectual skills for listening. The items in the questionnaire focused on the recognition of the structure or form of a piece of music and upon awareness of colours and textures in music. Only about a quarter of our subjects (7) shared the view that understanding form was a necessary skill. This may not be too surprising since the ability to recognise the structure of a piece of music is quite a high level skill. Rather more surprising was that the more basic abilities such as remembering melodies and rhythms from music were judged by the great majority to be unnecessary.

One slightly bizarre result here is the belief of some that the form of a musical composition can be recognised by those lacking memory for melody or rhythm.

Almost inevitably, virtually all considered that some knowledge of the history of music is helpful when listening to a piece of music. On the other hand, fewer believed that ignorance of the times and culture in which a composer lived prevents a full understanding of his music.

What is the relationship between understanding and emotional response?

	S.A.	A.	U.	D.	S.D.
Appreciation requires that the listener derives satisfaction, though not necessarily pleasure, through an understanding of the rules and conventions used by the composer.	1 3%	11 36%	2 6%	15 50%	2 6%
"Art - and this includes music - must reach the Feeling via the Understanding." Before it can reach your feelings you must understand it.	2 6%	4 12%	2 6%	18 57%	7 21%
When music heard by school children is accompanied by either emotional satisfaction or intellectual understanding of it, it has been appreciated.	4 12%	21 64%	2 6%	5 15%	1 3%
It is more important for children at school to be aroused to strong feelings by music than to have an intellectual understanding of it.	6 18%	16 49%	4 12%	6 18%	1 3%

The evidence presented thus far suggests that appreciation involves these two aspects, making some intellectual effort in listening and experiencing certain (emotional?) effects of the music. Despite little evidence of agreement regarding the nature of the necessary intellectual skills or what the effects of the music should be, it is still of paramount importance to ask whether these two aspects of appreciation are related and if so how.

The statement, "Art must reach the Feeling via the Understanding" (Buck, 1943) receives little support. However the closely related statement that "Appreciation requires the listener to derive satisfaction through an understanding of the rules and conventions used by the composer" was agreed with by twice as many people. Because of the discrepancy between these items it is dangerous to attempt to be too precise. But it is clear that a majority of our subjects do not feel that emotional satisfaction ought to result from intellectual understanding.

In the discussion of Payne's writings (Chapter 4) attention was drawn to her distinction between 'life emotions' and the 'aesthetic emotion'. It was suggested that in the latter an understanding of the music was the cue for the emotional response or experience whereas in the former the music directly provided the stimulus for the response without mediation from any "high-level" intellectual processes. If this interpretation is justifiable, then it would suggest that Buck's phrase could be restructured and amplified to become, "The aesthetic emotion is experienced when Art reaches the Feeling via the Understanding". Since our subjects reject Buck's statement and equivalent statements, they deny that appreciation is the evocation of the <u>aesthetic</u> emotion.

Thus 'appreciation' is seen as a broad concept implying no rigid relationship between its cognitive and affective elements. Whilst this is advantageous in the sense that the concept has a broader generality, there is the disadvantage that 'appreciation' is a disjunctive concept, in the sense that this term is used by Bruner, Goodnow and Austin (1956). As Butcher points out (Butcher, 1968), "there is something untidy, arbitrary and unsatisfactory about disjunctive categories" to many people.

It should be noted that with children, who have not yet reached the stage of mature adult appreciation, but who are still in the process of learning about music, it was generally agreed that either emotional satisfaction <u>or</u> intellectual understanding indicated appreciation. For children the vital aspect is probably the experiential: "to be aroused to to/

to strong feelings by music" is more important than having "an intellectual understanding of it" was a statement generally agreed with. This makes psychological sense, even if appreciation in maturity implies the arousal of the 'aesthetic emotion', yet our subjects are remarkably naive regarding the psychology of the learning processes.

Should appreciation involve a consideration of performance?

	S.A.	A.	U.	D.	S.D.
The act of appreciation should include a consideration of the music's performance as well as of the composition itself.	5 15%	22 67%	2 6%	4 12%	-
Understanding the expressive aspects of performance is more important in appreciation than an understanding of the composition itself.	-	5 16%	1 3%	20 65%	5 16%

It was fairly generally agreed that in music, where performers are required to bring to life that which is latent in the manuscript or score, "the act of appreciation should include a consideration of the music's performance as well as of the composition itself". (Laszlo, 1967) However, a good majority felt that an understanding of expressive aspects of performance is less important than an understanding of the composition itself. Most would be thinking of classical music when making their judgement, for they have had a classical training. One wonders what jazz musicians would have said. This is not idle speculation for some jazz is worthy of serious consideration. Moreover some 20th century music by serious composers has escaped from the 19th century traditions in allowing some freedom for the performers to determine what is played.

Should appreciation imply an evaluation of music?

	S.A.	A.	U.	D.	S.D.
In Appreciation, the essential task is to evaluate the quality of the music which is listened to.	2 6%	11 34%	5 15%	13 41%	1 3%

Most dictionary definitions of the word 'appreciation' and several definitions of the word when applied to music appreciation, include as one meaning an ability to evaluate that which is to be appreciated. Consequently it was interesting that rather less than half our subjects considered that, "in appreciation, the essential task is to evaluate the quality of music which is being listened to".

Does music have 'meaning' or 'significance'?

	S.A.	A.	U.	D.	S.D.
"Music is just as much a language as English, with a notation, a grammar, and a literature of its own. Every great melody has got a meaning; the great melodies are like the great lines of Shakespeare, or of Milton, or of Virgil, as full of meaning and significance for those who have ears to hear them."	13 39%	12 36%	2 6%	6 18%	-
Every great melody has got a meaning, if only we could find it.	5 17%	6 21%	3 10%	14 49%	1 3%
Every great melody has significance.	7 29%	13 54%	1 4%	2 8%	1 4%
Some, though not all, melodies have meaning.	4 14%	14 50%	2 7%	8 29%	-
The meaning of music lies in the emotions it evokes. To find the meaning we do a kind of translation when we know which emotions correspond with which particular sound patterns.	1 3%	7 22%	8 25%	11 34%	5 16%
The meaning in a piece of music should be the same for all listeners.	-	-	1 3%	11 37%	18 60%
The meaning in a piece of music should be the same at all times for any one person.	-	2 6%	1 3%	16 53%	11 37%

The question, "Has music meaning?", if taken at its face value with the implication of some kind of literal meaning tends to produce the answer "No". Only a minority would accept that every great melody has got a

a/

a meaning. The fact that four of our subjects would not even consider this statement suggests that the word 'meaning' here made the sentence nonsense for them. Nonetheless a parallel can be drawn between music and a language such as English. It was widely agreed that, "music is just as much a language as English, with a notation, a grammar, and a literature of its own". The analogy between music and a language like English should not be pushed too far because of the lack of unique unambiguous (denotative) meanings in music - a lack not shared by either spoken or written language. It becomes clear that it is the word 'meaning' that is problematic when we discover that very few disagreed with the statement, "Every great melody has significance". But what then does music signify? If some can deny that music has meaning but can assert that it has significance, then it seems as if music is considered significant because of the effects it can produce on the listener or because of its place within the context of the musical repertoire rather than because it has a literal message for the listener.

Whilst only a small number can accept that <u>every</u> great melody has meaning, a high proportion of those who responded to the item agree that <u>some</u>, though not all, melodies have meaning. (Unfortunately the number of subjects who have not responded to this item prevents us from feeling confidence that the great majority believe that some melodies do have meaning. Overall just over half our subjects responded thus.) One explanation of this would be that 'programme music' has meaning. However, as we did not distinguish programme music from other music (perhaps an oversight that might be remedied in the future) this can be no more than a tentative speculation. Nonetheless we feel disinclined to accept this hypothesis. With programme music one might expect to find its meaning in understanding the moods portrayed by the composer or the story as it unfolds. Such an interpretation would imply that particular sound patterns correspond with particular moods or emotional states and that the method whereby meaning is found is a more-or-less straight translation. Yet only 8 out of 32 subjects agreed with our paraphrase of Wober's original (Wober, 1968) that, "to find the meaning of music we do a kind of translation when we know which emotions correspond with which particular sound patterns".

There is one other line of evidence that makes us believe that when some melodies have meaning, this is not merely a reference to programme music. No-one agreed that the meaning in a piece of music should be the same for all listeners. Consequently each listener can take his own

own/

own (different) meaning from what he hears - the meaning is not put unambiguously into the music by the composer. Moreover, a listener may change his own interpretation of the music. Virtually all of our subjects denied that the meaning in a piece of music should be the same at all times for any one person. It is worth noting in passing that when the word 'significance' replaced the word 'meaning' in the items we have been discussing, the pattern of responses was essentially the same. The best interpretation of our findings is that music may have meaning as well as significance but that the meaning or significance is subjectively determined.

However, even if the process of finding the meaning or significance is a subjective one, it is legitimate to inquire whether the meaning or significance resides in any particular elements of the music.

How/Where is the meaning or significance of music to be found?

	S.A.	A.	U.	D.	S.D.
The meaning of music is discovered when we understand its structure and form. (This is an intellectual process.)	-	7 25%	2 7%	11 39%	8 29%
The significance of music is discovered when we understand its structure and form. (This is an intellectual process.)	-	9 43%	3 15%	5 24%	4 19%
The meaning of music lies in the emotions (feelings) it evokes.	5 17%	14 48%	4 14%	5 17%	1 3%
The significance of music lies in the emotions (feelings) it evokes.	1 5%	10 50%	4 20%	3 15%	2 10%

It seems evident that our subjects believe that in so far as music has meaning it tends to be an emotional one. Even so, the diversity in the figures makes it inappropriate to lay any emphasis on this. Structure and form do not hold the key either to the meaning or the significance of music.

Possibly the most interesting point comes out of a comparison of the results of the last two statements cited above. More people find the

the 'meaning' of music in the emotions evoked by it than find the 'significance' of music there. Because it is relatively uncommon to talk of the significance of a piece of music for any given individual being achieved through an understanding of it or through the evocation of emotional responses, it suggests that 'significance' is a much more objective concept. It may be, as we hinted previously, that a piece of music has significance, not meaning, because of its place within the context of the whole musical repertoire. All our results are congruent with such an interpretation.

Although those sections regarding the nature of the meaning (significance) of music may seem to take us away from an analysis of the nature of music appreciation, it may be worth digressing further, briefly, to follow-up Langer's ideas regarding the nature of emotion that is associated with listening to music.

	S.A.	A.	U.	D.	S.D.
"Music is not the cause or cure of emotions, but their logical expression."	7 21%	17 52%	3 9%	4 12%	2 6%
Music does not arouse normal emotions, such as joy, fear, anger, sadness, etc., but it may possibly describe or illuminate these emotions. This is because the appreciative listener can recognise a similarity between the forms of music and the emotions.	3 10%	10 35%	1 3%	11 38%	4 14%

Many subjects indicated privately that they found these statements difficult to understand, yet there does appear to be considerable agreement that music should not merely be considered as a stimulus to trigger off an emotional response. Rather it is seen as providing an outlet and expression for emotions which are latent within. It may be accepted that music enables the expression of emotions which we normally experience. There is less agreement as to the means by which music can provide this expression. Langer's belief that 'form' in music is the crucial element here is not accepted and there is a very wide divergence of opinion on this matter.

Has music a moral or spiritual value?

	S.A.	A.	U.	D.	S.D.
"It is an insult to a man of Beethoven's genius to suppose that he spent his life stringing tunes together and lavishing upon them all the resources of art with no object in view but that of delighting the ears of men with a concourse of sweet sounds."	15 47%	10 31%	3 9%	4 13%	-
"No, the value of Beethoven's music is a moral value."	-	8 28%	11 38%	9 31%	1 3%

It is abundantly clear that a number of our subjects do not think of the meaning or significance of music as being discovered through intellectual processes or through the evocation of emotional feelings. Can it be that these subjects have a completely different conceptual framework from that of the majority of psychologists? An interesting sidelight is thrown on this by two related statements quoted above from Trotter (1924). Not surprisingly a large majority agreed with the first statement, though why "It is an insult" was not made explicit by anyone. The continuation of the original quotation, the statement that "the value of Beethoven's music is a moral value", produced very mixed results. A third of our subjects were uncertain and roughly the same number agreed with it as disagreed. This indicates that there may possibly be a reasonable number of people who can conceptualise of music having moral or spiritual values. It may even be that for these people music has some transcendental meaning or significance which is not amenable to psychological investigation.

CHAPTER 8

THE FACTORIAL STRUCTURE OF MUSIC APPRECIATION

Introduction

This chapter describes the investigation of the factorial structure of music appreciation. It is based purely on the results obtained from our school pupils - some 200 pupils of very mixed abilities from a wide range of home backgrounds.

From the many different tests and the questionnaire, a great amount of data was available. To analyse this, the most important technique used was factor analysis. Some consideration of the correlation matrix is, however, also provided. It might be noted that where separate scores are available in a test or test battery, each score is treated as a separate variable. For example, Wing's test battery gives seven scores for the seven sub-tests. However, use is also made of totals: thus with the Wing tests there are three 'totals' used; (i) the total for the 'ability' tests, i.e. Tests 1 - 3; (ii) the total for the 'appreciation' tests, i.e. Tests 4 - 7; (iii) the total for the whole test, i.e. Tests 1 - 7. With the Indiana-Oregon test, a single (total) score is the normal score. However, it is quite simple to determine 'part'-scores, and this we have done. There are two principal tasks to be undertaken when doing the test; 1. to determine which of two versions of a piece of music is the better; 2. to identify which element differs between the two versions. Separate scores were obtained for these.

The second of these scores was further subdivided into 3 separate scores, since the changed element could be either rhythm or harmony or melody. This gave separate parts scores for -

(i) the number of changes in rhythm correctly identified;

(ii) the number of changes in harmony correctly identified;

(iii) the number of changes in melody correctly identified.

Altogether 47 variables were used in the analyses. This included many from the questionnaire. A copy of the full list of variables is included in Appendix 15, and the variables provide complete coverage in all the areas dealt with in the school investigation. However, not all the data collected was used. For example, whether one or both parents

parents/

parents played an instrument, was considered a relevant variable for the factor analysis. The choice of instrument was not, and data on this is not used, at this stage. It should be noted that no composite measures were produced from the questionnaire data. To have done so would have been premature, for we lacked any proper basis for forming such composites. Indeed, this analysis was to provide the information necessary for deciding how variables should be combined.

Analysis of the Correlation Matrix

The correlational techniques used: The Product-moment correlation technique was used in every case because this is the standard technique, and because this made the task of computing uncomplicated. However, we were using both continuous variables (e.g. the test scores) and also dichotomous variables (e.g. 'whether the subject (i.e. school pupil) was a member of the school orchestra'). Consequently, where a continuous variable and a dichotomous variable are correlated, the result is, in effect, a 'point biserial' correlation coefficient: where two dichotomous variables are correlated, the computing procedure yields values of 'Phi'. Both 'point biserial' correlations and 'Phi' are totally acceptable. Their use makes no assumptions regarding the form of the distribution in the dichotomised variable, i.e. whether there is a genuine dichotomy or merely a convenient split in a continuously distributed variable. Moreover, the magnitude of these correlation coefficients is more conservative than that obtained by some other methods - a desirable feature. Furthermore, as they are, in fact, product moment correlations, all the coefficients obtained are strictly comparable and can therefore be factor analysed.

The correlation matrix: The full correlation matrix summarising the relationships between the many variables is presented in Appendix 16. The most striking feature of it is that so many of the correlation coefficients are positive. There are only 65 negative correlation coefficients out of 1081, i.e. about 6%, and many of these are predictable, for example they result from a comparison of 'taste for 'pop' music' with 'taste for orchestral music' or music ability.

The overwhelming proportion of positive coefficients suggests that test ability, ability as revealed in performing on an instrument or in choral singing, interest in performing, interest in concert going, musical taste etc. are intimately related. However, the closeness of the relationship cannot be evaluated without considering the magnitude of the correlation coefficients.

A summary is provided in Table 8-1. In this there is a crude division of all the variables into three categories. The 'test data' category contains results from all the tests used, no matter what they claimed to measure (18 variables). The information gathered in the questionnaire has been divided into two categories. The part of the questionnaire dealing with pupils' musical tastes has provided 'Taste data' based on 10 questions. The rest of the questionnaire provides information on 19 variables: this is the 'Questionnaire data'.

	Test Data 18 Variables	Questionnaire Data 19 Variables	Taste Data 10 Variables
Test Data	153 values of 'r'	342 values of 'r'	180 values of 'r'
	20 values > .7	0 value > .6	
	36 values > .6	62 values > .4	21 values > .4
	117 values < .6	280 values < .4	159 values < .4
Questionnaire Data		171 values of 'r'	190 values of 'r'
		28 values > .4	11 values > .4
		143 values < .4	179 values < .4
Taste Data			45 values of 'r'
			8 values > .4
			37 values < .4

TABLE 8 - 1 SUMMARY OF THE (.LOW) MAGNITUDE OF THE CORRELATION COEFFICIENTS FROM SCHOOL PUPILS TEST AND QUESTIONNAIRE DATA

From Table 8-1 it is obvious that the general level of correlation coefficients is low. This does not imply that they are unimportant. With a sample size of close on 200, values of the correlation coefficient can be less than .2 and still be significant at the .01 level, even if a two-tailed test is used. With the data we are considering, a one-tailed test could be justified in most cases and this would give statistical significance at the .05 level even with correlation coefficients of the order of .1.

It is important to distinguish statistical significance from psychological or musical significance. For example, there are relatively low correlations between attendance at concerts of serious music and musical abilities, as measured by tests (correlation coefficients of the order of .3 to .4). These <u>are</u> statistically significant, yet there must be many who attend concerts but have low musical ability, or who do not attend concerts even though they have high musical ability: no useful prediction of concert-going can be made from knowledge of test ability (and vice versa). Indeed the 'overlap' between these variables is so slight that one cannot really consider them to have a common origin (possibly some kind of musicality). Another example, this time a hypothetical but not an inappropriate one, makes the same point. If all the correlations were statistically insignificant, the interpretation of them (i.e. that there is no general musical ability) would be quite as meaningful and important as if the correlations were all very high (i.e. there is a large general factor of musicality). The relationship between statistical and psychological significance is a theoretical issue. Yet this second example is not too unrealistic. The correlation coefficients we report do tend to be low. We believe the implication of this, that there are many separate kinds of music appreciation, is, in any sense of the word, of great importance.

The highest correlation coefficients are found when the results of the various tests are inter-correlated. In part this is because 'totals' as well as the various individual test scores are included. Consequently there are a number of instances where we are not correlating independent measures. In such cases the correlation coefficients are, inevitably, fairly high. To take one example, there are high correlations between the totals for Wing's 'ability' tests (Tests 1 - 3) and the scores for each of Wing's tests: Test 1, Test 2 and Test 3. However, even when this is accounted for, the correlation coefficients in the test data are relatively high. The questionnaire and taste data provide lower figures. If the inter-correlations of the test data are excluded, over 86% of the correlation coefficients are less than .4.

Because of the large number of correlation coefficients, and because of their low values, it is not easy to see any clear patterns without the use of some formal technique to simplify the situation. The only immediately evident conclusion is that the many different aspects of musical ability or interest or experience are but loosely connected.

The Factor Analyses

The techniques used: The factoring was carried out using the "Statistical Package for the Social Sciences" (S.P.S.S.) (Nie, et al, 1970) on the E.R.C.C. I.B.M. 370/158 computer in Edinburgh. It was necessary to decide which of the various techniques to use, and there were certain constraints because S.P.S.S. does not contain all the methods which have traditionally been popular with psychologists, e.g. it does not allow 'centroid' factoring to be carried out. For most investigations it was decided to use two techniques. The first, principal components analysis, provides the simplest mathematical solution to account for the variance in the data, and it is a very widely used and accepted method. Indeed, according to Nie et al it is, "the most universally accepted factoring method". The particular form of analysis used in S.P.S.S. is that described by Harman (1967) as the 'principal-factor' method. The second method used is Rao's canonical factoring. This is a development from the classical factor analysis methods which are based on the faith that the observed correlations are the result of an underlying regularity in the data and is not unlike 'centroid'. The factoring benefits of this method have been described in such authoritative works as Harman (1967), Rozeboom (1966) or Rummel (1967).

After the basic factoring has been carried out, it is usual to rotate the factors which are obtained in the hope of obtaining a more meaningful factor solution. The most frequently used, and possibly the most meaningful method, is Varimax rotations. This method is the standard technique we adopted, but 'oblique' (and other) rotational methods were also used where it was thought possible that they would throw light on the problem being investigated.

Since all the statistical procedures used are valid, the most appropriate one is the one which allows the most meaningful psychological interpretation. We have found that no one technique is clearly superior to another, since the same pattern of factors emerged no matter which technique was used: our factors are surprisingly robust. We therefore make use of, and quote, results from all the techniques. It is most important to note that when the factor loadings are scrutinised, the different methods give results which differ in magnitude. With Rao's canonical factoring 'high' factor loadings are of the order of .7, .8 or .9: equivalent loadings with principal factoring are about .3 or .4 or .5.

Not all the factors produced by one technique were strictly paralleled by factors produced by another technique. In some instances what emerged as one factor with one factor analytic method (let us call it method 'A') came out as two factors with a different method (call it method 'B'). This is not a disadvantage where the two 'B' factors deal with the same variables, and only the same variables on the 'A' factor. In such cases the two methods do not provide conflicting results but complement each other and reveal the factorial structure in finer detail.

An example of this can be seen in the factor 'Appreciation of music as measured by Wing's Tests 4 - 7'. (Table 8-2) (This factor was found in the full factorisation of the 47 variables referred to above and is considered more fully later, p. 148 .)

	Principal Factoring Varimax Rotation	Rao's Canonical Factoring 'Oblique' Rotation	
	Factor 3	Factor 9	Factor 3
Wing 4 (Rhythm)	.31	.84	.07
Wing 5 (Harmony)	.30	-.07	.86
Wing 6 (Intensity)	.31	.37	.10
Wing 7 (Phrasing)	.41	.22	.53

TABLE 8 - 2 FACTOR LOADINGS ON APPRECIATION FACTORS PRODUCED BY DIFFERENT METHODS

Principal factoring gives only one appreciation factor (no matter which type of rotation is used) and the four variables are of similar importance. The canonical factoring gives two factors, which are virtually independent,* one for Tests 4 and 6, the other for Tests 5 and 7. None of the other 43 variables in the analyses have factor loadings which approach in magnitude those quoted. It is reasonable to interpret the results as showing that music appreciation, as measured by the Wing tests, has two distinguishable elements, one relating to appreciation of rhythm and intensity, the other to harmony and phrasing, and that these are nearly independent. We do not believe the principal factoring is "wrong" in this case. Rather it gives a less detailed picture of appreciation.

*The correlation between the factors is .27.

In this example the canonical factoring gives a more precise picture than the principal factoring. This is not always the case. Sometimes principal factoring gives better resolution of the factors. In other instances it is the method of rotation, and not the factoring method, that is responsible for providing more intelligible factors.

Thus far we have been discussing the methods of factor analysis used and some of the points which affect the interpretation of the results: we have not considered the results themselves to ask what is the nature of the factors which we have produced. To do this now we will make use of not only the results of the factor analyses so far described, but also some further factor analyses which were carried out after the earlier ones. Each of these later analyses focused on a limited number of variables which had been found to be of special relevance and interest.

The overall pattern of factors: Four main factor analyses were carried out to make use of each of the rotation methods with each of the factoring techniques,

i.e. (i) Principal factoring with Varimax rotation.

(ii) Principal factoring with 'Oblique' rotation.

(iii) Rao's factoring with Varimax rotation.

(iv) Rao's factoring with 'Oblique' rotation.

In each of the four analyses, twelve factors were extracted as significant (because their eigenvalues exceeded unity). A most important finding was that essentially the same factors emerged in each case. No real problems arose because of different analyses requiring different interpretations. Indeed the robustness of the factors in surviving different statistical treatments is most impressive.

The most significant differences resulting from the factoring or rotation method is that the factors appear in different orders and account for different percentages of the variance. This, of course, is to be expected. However it does lead to a problem in determining the importance of different factors. We are less concerned with this than with identifying the factors.

(Because Factor 1 of the Principal Factoring with Varimax Rotation does not describe the same thing as Factor 1 of (say) Rao's Factoring with Oblique Rotation, there is a source of possible confusion when reading the tables that present the findings. Dashes are added, as follows, to the factor numbers in order to distinguish them -

one dash for Principal factoring with Varimax rotation,

two dashes for Principal factoring with 'Oblique' rotation,

three dashes for Rao's factoring with Varimax rotation,

four dashes for Rao's factoring with 'Oblique' rotation.

For example, Factor 2''' is the 2nd factor extracted in the varimax rotated solution of Rao's factoring.)

The factors we have obtained fall into four clearly defined categories. These are -

1. Factors of Test Performance.
2. Factors of Performance and Performing Ability.
3. Factors of Musical Interests and Tastes.
4. Factors relating to Family Background.

Within each of these categories there are a number of factors, and these are described in some detail. (For convenience each aspect of musical appreciation that is identified in the factor analyses is identified by a Roman numeral as well as by naming.)

It might seem desirable to discuss at this stage, relatively general matters such as whether the factors obtained are ones that might have been expected; and, just as important, whether any factors that could have been predicted are missing. However, this is impractical until after a detailed consideration of the factors obtained. Further comments on the overall pattern of results are therefore postponed.

Factors of Test Performance

Four main factors have been identified in all the analyses. These are -

I Performance on Wing's 'Ability' Tests

II Performance on Wing's 'Appreciation' Tests

III Performance on the Indiana-Oregon Test

IV Performance on Martin's Test of Discrimination of Composer Styles.

I Performance on Wing's 'Ability' Tests (i.e. Wing's Tests 1 to 3): Of the four factors identified as factors of test performance, this factor is possibly the most important. Certainly in analyses using Rao's canonical factoring, this was the first factor and therefore the one accounting for the greatest proportion of the variance.

In Table 8-3 we present the factor loadings that lead us to identify the factor. The four columns give the results for the four separate analyses. This table gives only an extract from the fuller tables presented in Appendix 17. Variables with high factor loadings are listed and so are other variables which are of some interest, even where their factor loadings are insignificant.

	Factoring Method	Principal Factoring		Rao's Canonical Factoring	
Name of Variable	Method of Rotation	Varimax Factor 4'	Oblique Factor 12"	Varimax Factor 1"'	Oblique Factor 1""
Wing 1 (Chord Analysis)		.36	.40	.72	.52
Wing 2 (Pitch Discrimination)		.30	.21	.82	.78
Wing 3 (Memory for Pitch)		.32	.24	.73	.56
Total for Wing Appreciation Tests (4 - 7)		.08	.01	.39	.09
Total for Indiana-Oregon		.04	.01	.35	.10
Hoffren		-.03	-.04	.34	.17
Martin		.06	-.03	.27	.14
Wing 5 (Harmony)		.08	.04	.43	.34
Whether piano is played		.28	.37	.43	.19
Number of instruments at home		.12	.06	.38	.20
Possession of record player		-.30	-.51	-.09	-.17

TABLE 8 - 3 FACTOR LOADINGS FOR PERFORMANCE ON WING'S 'ABILITY' TESTS

There can be little doubt of the validity of identifying the factors as we do. However, the factors produced by the different techniques are not quite identical. With all but the varimax solution of Rao's canonical factoring the tests (other than Wing's ability tests) have negligible loadings. But Rao's canonical factoring with varimax rotation gives clear positive loadings.

The differences can partly be explained in terms of differences in the factoring methods. With Rao's canonical factoring the first (unrotated) factor is a general factor: this is not the case with Principal factoring. Since varimax rotation produces orthogonal factors whereas the oblique factoring need not, the former method of rotation is less likely to 'destroy' the positive factor loadings for the first factor in the original solution. As the factor we are discussing is the first factor produced by Rao's factoring, this may help to explain the differences. It does not 'explain away' the differences: they still remain.

The 'Appreciation of Harmony' Test (Wing Test 5) is not one of the 'ability' tests, yet it gives interesting results. With Rao's canonical factoring there are fairly sizable factor loadings which suggest that the factor is concerned with ability to handle the sounds and combinations of sounds of music since harmony, chord analysis and questions of pitch all relate to this. Tests 4, 6 and 7 are concerned with rhythm, intensity and phrasing - rather different aspects of music.

It is interesting that 'piano-playing' has a significant loading on this factor, whereas the loadings for playing any instrument other than the piano are less than .09 with each of the four analyses. This suggests that playing the piano is not quite like playing any other instrument. Possibly those who are recognised as having fairly high musical aptitude are fairly routinely sent 'for piano lessons'. On the other hand, the decision to study some other instrument may be influenced by many other considerations and, in consequence, it is revealed in other factors. There is, however, the opposite argument that children are often routinely sent to piano lessons as it is the socially correct thing to do, whereas an orchestral instrument is studied only by those with real musical talent.

The negative loading of the variable 'possession of a record player is, at first sight, rather surprising. However, as we shall see, possession of electronic equipment for reproducing music tends to be most found in in/

in those who do not actively make music themselves, who are often of no more than average musical ability, and whose musical tastes are for non-classical styles. This interpretation is supported by the positive, though fairly low, loadings of the variable 'number of instruments at home'.

II Performance on the Wing 'Appreciation' Tests (i.e. Wing's Tests 4 to 7):

	Factoring Method	Principal Factoring		Rao's Canonical Factoring			
	Method of Rotation	Varimax	Oblique	Varimax		Oblique	
Name of Variable		Factor 3'	Factor 4''	Factor 3'''	Factor 7'''	Factor 3''''	Factor 9''''
Wing 4 (Rhythm)		.31	.24	.81	.12	.07	.84
Wing 5 (Harmony)		.30	.35	.01	.74	.86	-.07
Wing 6 (Intensity)		.31	.37	.37	.11	.10	.37
Wing 7 (Phrasing)		.41	.21	.29	.51	.53	.22
Total for Wing Ability (1 - 3)		.04	.13	.11	.09	.11	.12
Total for Indiana-Oregon		-.02	-.01	.07	.12	.09	.04
Hoffren		.20	-.05	.11	.17	.16	.09
Martin		-.03	.00	.08	.07	.07	.08
Whether piano is played		-.15	-.17	.02	.00	.00	.02
Whether any other instrument played		-.11	-.07	.05	-.01	.06	.03

TABLE 8 - 4 FACTOR LOADINGS FOR PERFORMANCE ON THE WING 'APPRECIATION' TESTS

The analyses all quite consistently show that Wing's appreciation tests measure different skills from the ability tests. The loadings of Wing's 'Ability' tests are negligibly low. The Principal factoring provides us with rather smaller factor loadings than we might have looked for, but virtually none of the other variables are of significance. Rao's canonical factoring possibly explains the reason. Wing's 'Appreciation' tests measure not one 'pure' factor of music appreciation but two related factors. The 'Oblique' rotation seems to reveal basically the same picture as the varimax rotation, that is a factor of 'appreciation of rhythm and intensity' and a second factor of 'appreciation of harmony and phrasing'. However, with the 'Oblique' 'Oblique'/

'Oblique' factoring, the alignment of the factors with the variables is better than with the varimax factoring and it is therefore appropriate to consider these as correlated factors. The correlation coefficients with the particular analysis quoted, is .27. (It might have been interesting, but it was impractical, to carry out many rotations - using the same basic factoring and rotation technique - though allowing the magnitude of the correlations between factors to vary.)

As with Factor I, Performance on Wing's 'Ability' Tests, the other tests have small loadings, with two minor exceptions. Hoffren's Test of Expressive Phrasing does have positive loadings on to 'Appreciation of harmony and phrasing'. So too has the Indiana-Oregon 'part-score' which measures ability to recognise when it is variations in the harmonisation that distinguish two similar musical extracts. (The value of the factor loading is about .2.) Both of these results are in accord with our interpretation of the factor.

There are only two other noteworthy findings - both rather surprising. First, taste for folk music and taste for Scottish country dance music have factor loadings of about .3 with the (general) appreciation factor, as it is revealed by the obliquely rotated principal components analysis. This is not replicated on any of the other analysis. Second, attendance at concerts of serious music has positive loadings with the factor of appreciation of rhythm and intensity, but not with appreciation of harmony and phrasing. No reason for this odd result is obvious.

III Performance on the Indiana-Oregon Test:

	Principal Factoring		Rao's Canonical Factoring					
	Varimax	Oblique	Varimax			Oblique		
Factor No.	12'	2''	2'''	10'''	12'''	2'''	6'''	11'''
Ability to discriminate better version on Indiana-Oregon	.31	.32	.58	.66	.03	.09	.91	.00
Correct identification of Rhythm changes on Indiana-Oregon (R)	.36	.36	.67	-.06	.61	.47	-.05	.69
Correct identification of Harmony changes on Indiana-Oregon (H)	.30	.30	.78	-.10	-.16	.77	.11	-.11
Correct identification of Melody changes on Indiana-Oregon (M)	.39	.39	.77	.08	-.02	.66	.28	.01
Identification of changed element (i.e. Total of R + H + M)	.41	.41	.88	.04	.15	.76	.13	.21
Wing 'Ability' Tests (Total of Tests 1 - 3)	-.03	.05	.30	.04	.04	.10	.15	-.01
Wing 'Appreciation' Tests (Total of Tests 4 - 7)	-.01	.00	.28	-.02	.00	.08	.02	-.07
Hoffren	.18	.17	.39	.06	.06	.22	.14	.03
Martin	.06	.08	.26	.10	.01	.08	.19	.03

TABLE 8 - 5 FACTOR LOADINGS FOR PERFORMANCE ON THE INDIANA-OREGON TEST'

Once again ability on one test, in this case the Indiana-Oregon, seems to be relatively independent of ability on other music tests. One must be cautious about stressing too strongly the independence of the tests. The factor analyses, through using a very large number of variables, and through using the 'part-scores' on tests like the Indiana-Oregon, enables us to see clearly the 'fine structure' of our factorial solutions. Our approach does not draw attention in the same way to any overlap there may be. This point we discuss again later.

Since our approach focuses on the detail of the factorial structure, it is interesting to note that the analytic aspects of the test (i.e. correctly identifying which elements of the music (Rhythm, Harmony or Melody) have changed) are to some extent independent of the ability to recognise the better of the two versions of the music. This is most clearly clearly/

clearly evident in the oblique rotation of Rao's factoring. In this a third related factor also shows itself. Identification of rhythmic changes is differentiated from identification of harmonic or melodic changes. This parallels the distinction found in the analysis of Wing's 'appreciation' tests. Yet the Indiana-Oregon rhythmic factor is not the same as the Wing appreciation factor of 'Rhythm and Intensity'.

The Hoffren Test of Expressive Phrasing does not have a factor of its own in any of the analyses and it aligns to quite an extent with the Indiana-Oregon test.

None of the variables from the questionnaire have loadings of any magnitude.

IV Performance on Martin's Test of Discrimination of Composer Styles:

	Principal Factoring		Rao's Canonical Factoring	
	Varimax Factor 10'	Oblique Factor 9''	Varimax Factor 5'''	Oblique Factor 4''''
Martin's test	.61	.62	.83	.79
Wing 5 (Appreciation of Harmony)	.26	.23	.30	.23
Wing 7 (Appreciation of Phrasing)	-.20	-.17	-.21	-.27
Membership of a 'musical group'	.29	.29	.26	.24
Wing 'Ability' Tests (Total of Tests 1 - 3)	.02	.04	.10	.07
Wing 'Appreciation' Tests (Total of Tests 4 - 7)	.03	.03	.07	.03
Indiana-Oregon (Total)	.06	.05	.10	.03
Heffren	-.02	.04	.11	.07

TABLE 8 - 6 FACTOR LOADINGS FOR PERFORMANCE ON MARTIN'S TEST OF DISCRIMINATION OF COMPOSER STYLES'

The validity of this factor seems incontravertible and is most encouraging for it does suggest that there is something unique in this test. A key element seems to be ability to discriminate harmonic differences so as to identify the better version: on all the analyses, Wing's Test of Appreciation of Harmony has factor loadings of between .2 and .3. There is

is/

is some evidence that there is probably not a conscious awareness of the harmony 'cue'. Ability to identify when it is 'harmony' that distinguishes two versions on the Indiana-Oregon test has a negligible loading on to this factor. Yet ability to recognise the better version on the Indiana-Oregon test does tend to have significant loadings, though they are always just under .2 - not high by any standards.

Although this factor is concerned with ability on our test, the test itself is not necessarily unidimensional. When the results of Rao's canonical factoring with varimax rotation are considered, the variable scores on the Martin test has a factor loading of .27 on Wing's 'Ability' factor (Factor 1''') and a factor loading of .26 on Wing's 'Appreciation' factor (Factor 2''') and a factor loading of .22 on the factor of 'Taste for serious music' (Factor 9''').

Membership of a 'musical group' has a clear positive loading on to this factor. This is an interesting finding since about half the groups are not concerned with classical music - they are 'pop' or 'rock' groups, groups of folk singers, pipe bands and brass bands.

Factors of Performance and Performing Ability

Three main factors were identified that fall into this category. However, these factors tend to overlap a little with factors of musical interests and tastes and of home background. This is unimportant as all the factors can be identified, and our classification of them is essentially a convenience rather than a necessity.

V Activity and Ability on an orchestral instrument:

	Principal Factoring		Rao's Canonical Factoring	
	Varimax Factor 9′	Oblique Factor 10″	Varimax Factor 8‴	Oblique Factor 8⁗
Whether an instrument, other than piano, is played	.48	.47	.39	.42
Membership of school orchestra	.51	.52	.86	.96
Membership of any other orchestra	.45	.45	.57	.61
Self-assessment of playing an instrument	.26	.27	.42	.42
Whether a piano player	.02	.03	.06	.03
Total for whole Wing Test (1 - 7)	-.02	-.02	.18	.10

TABLE 8 - 7 FACTOR LOADINGS FOR 'ACTIVITY AND ABILITY ON AN ORCHESTRAL INSTRUMENT'

There is little difficulty in identifying this as a factor of playing an orchestral instrument. Membership of an orchestra has the highest loadings, and the next most important variable is whether an instrument, other than piano, is studied. This latter variable has rather smaller loadings, but possibly this is not surprising since instruments such as guitars or bagpipes or saxophones are included yet these are not normally orchestral instruments. Piano playing is unrelated to this factor and has negligible factor loadings.

As was noted in the discussion of Wing's 'Ability' Tests, orchestral playing and measured ability are quite distinct entities. The loadings of all the tests, not just Wing's, are consistently low.

One implication of the separation of the factors for tested ability and the factors of performance, is that some of our orchestral players have relatively low 'test ability'. No doubt this is true and such persons might be likely to give up being orchestral members. A more important implication is that there is much untapped musical talent. This is not a new finding. Our figures merely substantiate it and provide further evidence of the importance of the fact.

VI Singing Activity and Ability:

	Principal Factoring		Rao's Canonical Factoring	
	Varimax Factor 7′	Oblique Factor 8″	Varimax Factor 9‴	Oblique Factor 10⁗
Membership of school choir	.45	.39	.34	.22
Membership of church choir	.59	.59	.28	.25
Self-assessment of singing	.30	.32	.45	.36
Self-assessment of musicality	.05	.06	.49	.30
Whether piano is studied	.21	.13	.26	.20
Possession of a tape recorder*	-.31	-.46	-.07	-.07
Attendance at concerts of serious music	.08	.02	.66	.60
Taste for chamber music (and classical music+)	.01	-.02	.59	.49
Extent of family music making	.00	-.01	.29	.18

TABLE 8 - 8 FACTOR LOADINGS FOR 'SINGING ACTIVITY AND ABILITY'

The results from the two methods of factoring lead to rather different results. Both techniques reveal the importance of choir membership and and/

and singing ability (as measured by self-assessment of singing). However, while 'singing' is undoubtedly the main element of the Principal Components factor, it is certainly not the main element of the factor revealed by Rao's canonical factorisation. Although singing is the main element with the principal factoring, 'possession of a tape recorder' is as important a variable and its negative loading suggests that we may be dealing with an 'active v. passive music-making factor'. This is a theme we return to later with some of the other evidence.

The factor revealed by Rao's factorisation is most clearly seen in the varimax rotation. It seems to reflect catholic interests in serious music. The most important variables are 'taste for orchestral music', 'taste for opera' and 'taste for chamber music'*. All have similar high loadings of about .6. This factor could be thought of as a 'taste' factor, but it really is much broader. It has two aspects apart from singing, and a taste for serious or classical music. These are 'attending concerts of serious music' and an interest in music making (apart from singing). Evidence for these latter is found in the positive factor loadings for the variables 'extent of family music making' and, also, to a lesser extent, 'studying an instrument by oneself' and 'being a member of a musical group'.

The generality of this factor is neatly revealed in the factor loading on 'self-assessment of musicality', which is high, whereas with the canonical factoring it is virtually zero. The factor includes both active and passive musical activities, though not orchestral playing.

Two further analyses help to reveal the 'microstructure' of this factor. Both use more restricted ranges of variable. For the first, playing an instrument, singing and test ability provide the main variables. The full results are tabulated in Table 8 - 9.

With this supplementary analysis**, the first factor is a 'test factor' with analytic tests being more important. The second factor is an 'orchestral instrument' factor similar to our Factor V described in p.153 Factors 3 and 4 are 'singing' factors. We believe they reflect and accentuate some of the differences already observed, and thus help to clarify the situation. The essence of Factor 3 is singing in a school choir choir/

---

*These three variables usually have similar correlates and are the key variables in Factor IX 'A Taste for Serious Music'. Because of the similarity, we only quoted the factor loadings for one of them

**A principal factoring with varimax rotation.

choir and/or playing the piano. One almost suspects (possibly a little cynically) that these are activities that a musically able person with some minimal interest or imagination might engage in or be persuaded to engage in by parents or teachers. They are the musical activities which school

	Factor 1	Factor 2	Factor 3	Factor 4
Wing 'Ability' Tests (Total of Tests 1 - 3)	.69	.33	.46	-.12
Wing 'Appreciation' Tests (Total of Tests 4 - 7)	.57	.42	.20	.07
Ability to discriminate better version on Indiana-Oregon Test	.70	.15	.13	.09
Identification of changed element on Indiana-Oregon Test	.80	.17	.17	.17
Whether piano is studied	.33	.11	.55	-.07
Whether another instrument is studied	.09	.45	.15	.03
Membership of school orchestra	.25	.80	.13	.05
Membership of any other orchestra	.17	.74	.09	.05
Membership of school choir	.17	.22	.63	.28
Membership of church choir	.11	.07	.28	.42
Possession of tape recorder	.03	-.01	.04	-.35
Whether siblings play an instrument or sing	.10	.28	.40	.21
Self-assessment of singing	.36	.05	.29	.56

TABLE 8 - 9 RESULTS OF FACTOR ANALYSIS OF TEST ABILITIES, PLAYING AN INSTRUMENT AND SINGING

children are most likely to engage in.

Factor 4 focuses on membership of a church choir, though the highest loading is not on that variable but on self-assessment of singing ability. This is a little ironic since the factor loadings for the music tests are lower than for Factor 3. This factor, but not Factor 3, is characterised by a sizable negative loading of possession of a tape recorder. One might caricature the interpretation of this by suggesting that our church choristers, nurtured in a good Scottish presbyterian tradition*, have a nice self-conceit concerning their singing ability (regardless of their real ability) and also somewhat Calvinistic attitudes towards modern sound reproducing equipment such as tape recorders.

* Despite a high incidence of Roman Catholicism, we did not use any Roman Catholic schools.
This is not intended to be 'tongue-in-cheek'. McClelland's work suggests that the 'Protestant ethic' can lead to such effects (McClelland, 1961).

If this interpretation has any validity, then the musical value of being church choristers might possibly be questioned. This runs counter to the arguments used in Chapter 2, where the advantages of choir membership were discussed. It is probably more important that the interpretation suggests a relationship between a music activity, on the one hand, and personality and attitude variables on the other hand.

The two aspects of singing we have revealed in this analysis are very roughly those characterised in the full analyses by the Principal component factor and the Rao canonical factor. The patterns of factor loadings match well enough between Factor 3 of the supplementary analysis and Factor 7 of the varimax rotation of the Principal components factorisation and between Factor 4 of the supplementary analysis and Factor 9 of the varimax rotation of Rao's canonical factoring. The only apparent discrepancy is found in the comparisons of the loadings for self-assessment of singing. This can be explained (at least in part) by the fact that in Rao's canonical factoring the loadings have to be between one and two times as large as in Principal factoring to be of the same relevance.*

A second supplementary analysis was carried out using test results, singing variables, taste variables, 'possession of a tape recorder' and 'whether piano is studied'. Four factors were extracted and two of these had the same patterns of factor loadings for the singing variables as in the first supplementary analysis. For this reason the results are not quoted here but are relegated to Appendix 19.

VII Self-initiated Interest and Ability: This factor reveals itself quite clearly in the Principal factoring, but does not emerge in any clear-cut way in the factoring by Rao's canonical method, although it is reflected in the Factor concerned with 'Family Background of music'.

Table 8 - 10/

---

*This is based on the observed loadings with our analyses, not on any statistical test.

	Principal Factoring	
	Varimax Factor 8'	Oblique Factor 11"
Self-taught instrument	.58	.58
Membership of a "group"	.36	.35
Self-assessment of instrumental ability	.32	.30
Attendance at Folk/'Pop' concerts	.25	.32
Whether piano is studied	-.12	-.17
Possession of a record player	-.25	-.17

TABLE 8 - 10 FACTOR LOADINGS FOR 'SELF-INITIATED INTEREST AND ABILITY'

The name provided for the factor derives from the importance of the variable 'Self-taught instrument'. However, many of our subjects took up an instrument only to abandon it after a short time - several months or possibly a year later. 'Membership of a group' is also, therefore, of major importance because it suggests a deep involvement with making music. This is confirmed by our subjects' beliefs about their own instrumental abilities. Since the most popular types of music are 'pop' and 'folk' music, the clear positive loadings on 'Attendance at Folk/'Pop' concerts' again shows that there are active musical interests revealed in this factor. It might be noted in passing that there is another factor of 'Attendance at Folk/'Pop' concerts' with really high loadings in this factor. This is discussed in page 160.

A supplementary factor analysis* was carried out using a more restricted range of variables than in the main analyses, but including most of those variables relevant for considering self-initiated interest and ability. Although the results are not quite consonant with those from the main analyses, they are still quite illuminating.

Five significant factors were extracted. The first factor is an analytic ability factor. Factors 2 and 3 concern activities and abilities of the type presently being discussed. The variables with high loadings on Factor 2 are "Membership of a 'group'" (.40) and 'Self-assessment of instrumental ability' (.37). Having taught oneself an instrument is a variable with a loading that seems low (.16): nonetheless it is fairly high high/

*Principal factoring with varimax rotation. Full documentation is in Appendix 20.

high compared to the loadings of the other variables. This factor is quite similar to the one extracted in the larger analyses. Factor 3 of the supplementary analysis has a high loading on the variable 'Self-taught instrument', but its highest loading is on 'Attendance at Folk/'Pop' concerts' (.38). This factor is probably closest in character to the main analyses factor of 'Attendance at Folk/'Pop' concerts' referred to. We believe it is less concerned with musical performance than with an active interest in listening.

The existence of this factor is, we believe, of some importance. Too often those concerned with promoting musical activities and interests concentrate on what is more socially acceptable or with what they, themselves, can organise. The fact that there can be sufficient motivation to become musically involved in learning an instrument by oneself or in joining some kind of loosely organised group can too easily be overlooked especially where the music is within a modern popular idiom. Within our society there is little sustained encouragement for those with a 'Self-initiated interest/ ability' except possibly from those seeking commercial benefits from it. Too often the interests fade because of lack of real support.

Factors of Musical Interests and Tastes

The group of factors to be discussed in this section relate to musical interests and tastes. In contrast to the last group of factors, which reflected various performing skills, these factors describe various listening habits and/or preferences.

VIII Attendance at folk/'pop' concerts and interest in 'pop' music:

	Principal Factoring		Rao's Canonical Factoring	
	Varimax Factor 2'	Oblique Factor 5''	Varimax Factor 6'''	Oblique Factor 7''''
Attendance at Folk/ 'Pop' concerts	.51	.44	.93	.97
Taste for 'Pop' music	.33	.52	.44	.39
Taste for Folk Music	.04	.37	.15	.10
Taste for Jazz	.18	.06	.24	.20
Possession of a record player	.27	.31	.08	-.09
Possession of a tape recorder	.56	.31	.14	.05
Self-taught instrument	.15	.09	.25	.27

TABLE 8 - 11 FACTOR LOADINGS FOR ATTENDANCE AT FOLK/'POP' CONCERTS AND INTEREST IN 'POP' MUSIC

This factor has already been referred to in the previous section (p.158) because of the overlap between our factor 'Self-initiated interest and ability' and this factor. Both factors reflect an active interest in popular music of the type that most appeals to the young. This factor centres at attendance of Folk/'Pop' concerts, and not unnaturally parelleling this a taste for 'pop' and folk or jazz music. Performing such music is obviously relatively unimportant and the variable 'Self-taught instrument' has but low factor loadings. The loadings relating to being taught an instrument are even lower.

It is difficult to be certain about the importance of appropriate 'hardware' for listening to pre-recorded music. The varimax rotation of the principal factoring has fairly high loadings for possession of a tape recorder or of a record player. However, in the purest 'pop-concert factor', the oblique rotation of Rao's factoring, the loadings do not vary significantly from zero. An explanation that is in accord with the results quoted, and also is plausible in other respects, is that sound reproducing equipment becomes necessary (and is owned) when physical attendance at concerts is impossible or infrequent.

It is interesting that these kinds of results that are being discussed here do not obtain with classical music - a point which reminds one of the sociological determinants and taste for folk/'pop' and of the pressures on teenagers to keep abreast of what is going on in the 'pop scene'.

IX Taste for serious (classical) music, and concert going:

	Principal Factoring		Rao's Canonical Factoring			
	Varimax	Oblique	Varimax		Oblique	
	Factor 1^{I}	Factor 6^{II}	Factor 1^{III}	Factor 9^{III}	Factor 1^{MI}	Factor 10^{MI}
Taste for orchestral music	.43	.45	.35	.53	.24	.41
Taste for opera	.40	.39	.22	.64	.08	.55
Taste for chamber Music	.45	.46	.28	.59	.17	.49
Attendance at concerts of serious music	.36	.34	.13	.66	.01	.60
Taste for 'pop' music	-.33	-.25	.03	-.49	.04	-.53
Total for Wing 'Ability' Tests (1 - 3)	.02	.04	.87	.22	.73	.05

TABLE 8 - 12 FACTOR LOADINGS FOR 'TASTE FOR SERIOUS (CLASSICAL) MUSIC, AND CONCERT GOING'

This is a 'robust' factor which has shown up in quite a large number of factor analyses which is chiefly characterised by a liking for classical music. It could be described as a bipolar factor since taste for 'pop' music consistently emerges with sizable negative factor loadings. Although a taste for 'pop' music reveals itself in our Factor VIII Attendance at folk/ folk/

folk/'pop' concerts and interest in 'pop' music, it is just as important as the negative component in this factor of 'Taste for serious music'.

It is important to stress that liking classical styles of music does not necessarily imply a dislike for 'pop'. Preference for classical music implies a relatively weak taste for 'pop'. However, our evidence (both from this questionnaire and the semantic differential) shows that 'pop' music is very popular. To like it less than the average person may still be to like it quite well.

Just as the 'pop' factor coupled taste for 'pop' music and attendance at 'pop' concerts, so the factor being discussed couples 'Taste for serious music' and 'Attendance at concerts of serious music'.

Although we believe it is proper to identify only one factor of interest in 'serious' music, we have provided statistics for two factors produced by the Rao's Canonical factoring. Factor 1 (with both rotation techniques) is essentially a factor measuring ability on Wing's 'Ability' tests. However, this ability tends to be accompanied by taste for serious, instrumental music. In accounting for tastes, the Wing 'Ability' factor is much less significant than the factor of 'Interest in serious music' (Factor 9 and 10 of the analyses). In both cases this latter factor is interesting because of its relation with vocal music. Taste for opera has fractionally larger factor loadings than taste for orchestral or chamber music, whereas in the principal factoring it has smaller loadings. The pattern is consistently completed by the high loadings for choral singing - a feature previously discussed (p.155) when it was pointed out that this was both a singing and a taste factor.

X Taste for folk music: The groupings of the variables which lead us to believe that there may be a factor of taste for folk music occur quite regularly. The variables are 'Taste for folk music' and 'Taste for Scottish country music'. In three of the four main factor analyses such groupings do occur (Principal factoring; varimax, factor 11: Principal factor, oblique, factor 4: Rao's factoring, oblique, factor 11). In these three factors the loadings are relatively low, and this is primarily because we do not have pure 'Taste for folk music' factors. Only with the first named analysis are the factor loadings on the other (45) variables low, suggesting a 'pure' factor. Factor 4 of the oblique solution of the principal factoring provides overlap with "Ability on the Wing 'Appreciation' Tests" and the factor on the oblique solution of Rao's factoring links taste for

for/

for folk music with the 'Rhythm' part-score from the Indiana-Oregon test.

	Principal Factoring			Rao's Canonical Factoring	
	Varimax	Oblique		Varimax	Oblique
	Factor 11	Factor 4″	Factor 7″	Factor 11‴	Factor 11⁗
Taste for Scottish Country music	.47	.34	.24	.31	.30
Taste for Folk music	.64	.28	.35	.17	.17
Taste for music from 'shows'	.03	.04	.03	.30	-.14
Taste for Latin-American music	.18	.12	.33	.42	.05
Taste for jazz	.17	.05	.01	.18	.10

TABLE 8 - 13 FACTOR LOADINGS FOR TASTE FOR FOLK MUSIC

This overlapping of factors can only mean that 'Taste for folk music' is relatively unimportant in the overall pattern of factors. However, even though there is overlap with more important* variables, the consistency with which these two variables are linked and their regular, though not invariable, separation from other 'taste' variables is, we believe, significant.

In the term 'Taste for folk music', we are using 'folk' in a generic sense. Often the term 'folk music' has fairly limited connotations, bringing to mind the work of such artistes as Burl Ives, Alan Lomax, Joan Baez, Peet Seeger or the Corries. However, the songs they sing (such as the 'Child'** ballads and more recent equivalents) have the same kind of origins as Scottish Country dance music: it is music of the people which is 'popular' and 'functional' rather than an 'intellectual' and which also derives from a historically old tradition. It is interesting that 'pop' music with its contemporary and ephemoral nature is not highly rated where the folk and Scots music are.

However, the position of Latin-American music and other forms of 'popular' music is not clear. Thus the Factor 7 of the oblique rotation of of/

*They are more important in that they have higher factor loadings or account for a greater proportion of the common variance.
**These are ballads collected by Francis James Child (1825 - 96).

of the Principal factoring couples our two 'folk' variables with 'Taste for Latin-American music'. In the other factor so far unmentioned, Factor 7 of the varimax solution of Rao's Canonical factoring, our folk variables are linked with several other 'taste' variables all of which are components of 'Taste for light music'.

XI Taste for light music:

	Principal Factoring		Rao's Canonical Factoring	
	Varimax	Oblique	Varimax	Oblique
	Factor 6'	Factor 3''	Factor 7'''	Factor 12''''
Taste for Scottish Country music	.12	.03	.31	.18
Taste for Folk music	-.06	-.19	.17	.09
Taste for music from 'shows'	.31	.34	.30	.32
Taste for Latin-American music	.50	.44	.42	.41
Taste for jazz	.60	.63	.18	.13

TABLE 8 - 14 FACTOR LOADINGS FOR FACTOR XI 'TASTE FOR LIGHT MUSIC'

With the exception of the one factor which overlaps with 'folk' music which we have discussed, the factors here are 'pure' and do not overlap with factors already discussed. Although the three relevant variables, taste for jazz, for Latin-American music and for music from shows, vary in importance from one factor to another, they do tend to cluster together. We have called this by the general name 'light' music, yet it may be that one element of the factor is for strong or rhythmic music. The bland 'music from shows' has relatively lower factor loadings.

A supplementary factor analysis* was carried out using only the 10 'taste-data' variables. The results from this are tabulated in Table 8 - 15. These confirm our interpretation of the results of the larger analyses. The three factors here are undoubtedly 1) the bipolar "Taste for serious music and Taste for 'pop'", 2) "Taste for light music" and 3) "Taste for folk music". The variables relating to attendance at concerts of serious music music/

*Principal components, varimax rotation.

music and concerts of folk/'pop' music were not included in this analysis. This, we believe, explains the lower loading for 'pop' music than for the several types of serious or classical music. In the main analyses 'Attendance at folk/'pop' concerts' and 'Taste for 'pop' music' made a fourth factor of

	Factor 1	Factor 2	Factor 3
Taste for orchestral music	.73	.11	.17
Taste for opera	.72	.11	.16
Taste for chamber music	.76	.17	.13
Taste for 'pop'	-.48	.10	.23
Taste for brass band music	.29	.25	.04
Taste for Latin-American music	.07	.60	.13
Taste for jazz	-.01	.42	.02
Taste for music from shows	.13	.57	.07
Taste for 'folk' music	.05	.06	.88
Taste for Scottish country music	.23	.27	.36

TABLE 8 - 15 RESULTS OF A FACTOR ANALYSIS OF TASTES FOR DIFFERENT KINDS OF MUSIC

musical interests or tastes. From the main analyses one might expect 'Attendance at concerts of serious music' to have quite a high loading onto Factor 1 of this supplementary analysis.

One variable is not properly accounted for. This is 'Taste for brass band music'. Both in this analysis and the main analyses it loads more highly onto the 'Taste for serious music' factor than onto any other factor. Nonetheless the factor loadings are never very high.

Discussion of taste factors: Although there is some slight ambiguity as to the nature of the two factors which are concerned with 'light' music and 'folk' music, this is of but little significance. More important is the finding that musical taste is primarily for one of four (essentially) separate styles of music. This, we believe, is an original finding. In the past studies concerning musical tastes have normally been based on intuitively determined dimensions of taste and not on the dimensions of taste revealed by empirical research.

Our findings may have some relevance in music teaching. They may help the music teacher to understand or predict his pupils' musical tastes better - a point of some importance since music teachers have limited time and opportunity to ascertain such information.

The lack of a general taste factor suggests that the distinction between those people with very catholic tastes who really enjoy many different kinds of music and those who can only obtain enjoyment from a limited range of musical styles is relatively unimportant, and that most people fall into the latter category.

Now, among skilled musicians, there are examples of very wide ranging tastes. To take two examples, Yehudi Menuhin has expressed an admiration for Stephan Grapelli, the jazz violinist, and also an interest in Indian music. Andre Previn is not only the conductor of one of the country's leading symphony orchestras and a Hollywood film score writer, he is also a jazz pianist of very considerable ability.

It is noteworthy that eminent musicians with catholic tastes believe that the term 'music' does not only apply to music within the classical european heritage. They believe that there is much that is musically valuable in jazz, in brass band music, in folk music, even in 'pop' and music from other cultures. Nonetheless, musicians who indulge in music of a type with which they are not normally associated (so casual and anecdotal observation reveals) often evoke surprise or even hostility. We believe that the reaction of surprise or hostility is produced by musicians as well as by the lay person and that it is caused by the categorisation of music into different forms or styles which are not seen as being equally valid musically.

It is precisely stereotyping of this sort that is revealed in the analysis of our pupils' responses. This also must have considerable educational influences. What these are depends upon the musical standpoint adopted by the individual teacher.

Factor Relating to Active Music Making in the Home

	Principal Factoring		Rao's Canonical Factoring	
	Varimax	Oblique	Varimax	Oblique
	Factor 5'	Factor 1''	Factor 4'''	Factor 5''''
Number of instruments in home	.43	.43	.83	.87
Possession of a record player	.30	.29	.30	.26
Possession of a tape recorder	.05	.07	.02	.04
Piano is studied	.12	.14	.25	.21
Some other instrument is studied	.10	.10	.30	.21
Parents play an instrument or sing	.41	.41	.57	.55
Siblings play an instrument or sing	.45	.46	.65	.62
Frequency of family music making	.37	.37	.46	.44
Self-assessment of singing	.17	.16	.22	.15
Self-assessment of instrumental ability	.07	.07	.41	.25
Self-assessment of musicality	.16	.16	.26	.15
Member of a musical group	.22	.22	.40	.41

TABLE 8 - 16 FACTOR LOADINGS FOR ACTIVE MUSIC MAKING IN THE HOME

There is but one broad based factor here which is to be found in all the analyses. There is no doubt that it is of considerable importance. In each analysis twelve factors were extracted, but this factor was never lower than fifth in order of extraction*.

*Possibly this is more a reflection of the number of relevant variables than of the importance of the factor - yet these are not independent.

Music making by all members of the family, whether individually or as a group, is an important aspect of this factor. Not unnaturally, self-assessment of various musical skills loads positively onto this factor. The active nature of the home music making also seems evident from the lower factor loadings for possession of a record player or tape recorder. On the other hand, having a good number of musical instruments in the home seems to be an aspect of this factor.

It is tempting to argue that there are many instruments in the home because members of the family do enjoy making music. However to do so would not be proper, first of all because 'Number of instruments' in the home is the more important variable and second, and more important, because the statistics we are using are purely descriptive: they do not provide explanations.

It is worth noting that measured music ability seems to have little bearing on this factor. The test variables all have remarkably low factor loadings on this factor.

More noteworthy is the very existence of this factor. If home background variables are of considerable importance in determining musical abilities and skills, one might have expected the variables listed in Table 8 - 16 to have significant, though possibly low, loadings on the factors already discussed and not to cluster together in this factor. It does suggest that home background variables are less important than many music educators would have us believe. Consequently, the importance of heredity and school environment and sociological variables may have been undervalued by some people.

Critique of the Statistical Procedures Employed

The choice of variables used as input for the analysis: The analysis might be criticised because of the inclusion of 5 variables which were composites derived from other variables already incorporated in the analysis*. Their intended function was to simplify the interpretation and the reporting of the results. For example, in Table 8 - 3 which relates to the factor 'Performance on Wing's 'Ability' Tests' (p.146) factor loadings are separately quoted for Test 1, 2 and 3 since they are high. The loadings on the 'Appreciation' tests are low, and differ from each other. It was, therefore, convenient to consider the loading for the total of the four appreciation tests and to quote this.

The validity of this procedure might be considered questionable, but at the time the analyses were carried out it seemed, for two reasons, that the advantages outweighed the disadvantages.

First, the effect of the 5 'derived' variables when there were over 40 basic variables was expected to be minimal.

Second, a more theoretical argument, the variables which are fed into any factor analysis are not independent and the values in the correlation matrix are not zero: indeed if they were, factor analysis would be pointless. Where two variables have a significant correlation, they reflect, to a greater or lesser extent, a common origin or source of measurement. In such cases there is redundancy of information. The very purpose of factor analysis can be seen as the attempt to provide some relatively simple scheme for describing the data through revealing where the redundancy occurs. Consequently, the additional redundancy, or overlap, of variables introduced by including the 5 'Total' variables with the 42 'Basic' variables was not thought inappropriate. It was (and only could be) after the scrutiny of the correlation coefficients and the factor analyses that the extent of the separation of the test data and the questionnaire data became fully evident. Only then was there recognition that the 5 variables may have had a much much/

*The five variables are 1) Total for the Wing Ability Tests, ii) Total for the Wing Appreciation Tests, iii) Total for all the Wing Tests, iv) Total of the three parts scores on the Indiana-Oregon Test which relate to ability to identify the changed element, and v) Total for the Indiano-Oregon Test.

much greater influence than anticipated, particularly on the factors of test performance. Since factor analysis reveals the redundancy in the basic data through the alignment of the factor axes with the 'areas' of maximum redundancy, it is possibly not surprising that a number of the 'factors of test performance' represent abilities for which composite scores were provided. How severe the distortion is cannot be gauged. However, we present in Appendix 21 a crude, and possibly inconclusive, analysis of the correlation coefficients relating to the test data.

In this discussion we have considered, in some detail, the less valid aspects of our procedure. In so far as there was a problem, it became serious because the effects were concentrated on one group of variables and factors. By the same token the effects on the other variables and factors must be minimal. As the factors of test performance are possibly of slightly less interest than the other factors extracted (because more study has been made of them by other workers) the most valid findings are the most important and interesting ones.

Ideally after the initial factor analyses revealed the difficulties, they should have been repeated using the 42 'legitimate' variables. Tasks of higher priority and purely practical limitations have, so far, prevented this.

The reasons for employing rotated solutions for our analyses: In our analyses, the factors that were extracted were more or less independent. Where varimax rotation was employed, the factors were necessarily orthogonal. Even with the oblique rotations, the correlation coefficients between factors rarely exceeded .2 or .3 and often were lower. As a consequence, it seems as though there are at least a dozen aspects of musicality which are totally separate. It is quite pertinent to ask how valid this conclusion is and to seek clarification on this issue.

It is necessary to stress that the factors are genuinely independent (or at least nearly so with the oblique solutions) but to add that many of the key variables which were used to identify these factors are intercorrelated. This is illustrated by the comparisons made in Appendix 22.

The aim of this investigation has been to discover what are the different aspects of musical abilities, interests, attitudes, tastes etc. To achieve this with maximum efficiency, it is desirable to give each factor as much psychological meaning as possible and to keep it as separate from the others as possible. Where unrotated factor solutions are used, the first factor usually is a general factor. This has two disadvantages. First of all it is general and so, by its nature, it does not help in distinguishing different aspects of musicality. Secondly, because it accounts for more of the common variance than any other factor, what remains is less easy to interpret. With rotated solutions, the variance of the general factor is, in effect, distributed among the many other factors and this makes their results more reliable and simpler to interpret.

With Rao's canonical factoring, where the comparison between rotated and unrotated solutions is clearest, we have the full statistical data for the unrotated factors. The first factor is a general factor and the tests have the highest loadings on it. These are of the order of .7 or .8. Most other variables of special note, such as the home background variables, the 'Taste for serious music' variables, the variables concerned with musical performance of any kind, etc. have loadings of only about .4 or .5. The other factors are bipolar*. These factors are not easy to interpret and they make much less psychological or musical sense than the factors obtained using rotation. This we believe is more than sufficient justification for the techniques we adopted.

*With a number of these factors there are a few variables with significant loadings at one pole and many variables, all of little significance, at the other pole. The factor loadings for this unrotated solution are to be found in Appendix 18.

Comparisons with Earlier Studies

It is worth considering briefly the extent to which our findings parallel those of earlier workers. If they are similar, this helps to establish their validity. At the same time it is appropriate to evaluate what is original in our work that may help in the task of deciding what is covered by the term music appreciation.

The number of variables and the types of analyses, inevitably produced a good number of well separated factors. This and the fact that our variables cover a wide range of topics has, however, lead to results which are not really comparable with earlier work. Limited comparisons are possible - in particular with analyses of test results - but even these are not necessarily straightforward. Where comparisons are not feasible it is only possible to consider whether our results are 'intuitively correct', and in accord with the general (and subjective) beliefs of musicians and/or psychologists.

With the test data our distinction between the Wing 'Ability' factor and the Wing 'Appreciation' factor is one which parallels Wing's own work and the reanalysis of his data by Faulds. The link between Wing's 'Appreciation of Harmony' test and his 'Ability' tests which we note, has been found before. (For example, with the musical group of Whittington, and in some of Shuter's results.) In Holmstrom's reanalysis of Franklin's date, Wing's Rhythm emerged as a largely specific factor. We found a 'Rhythm and Intensity' factor in which the loading on 'Rhythm' was much higher than on 'Intensity' and which, therefore, seems similar to Holmstrom's. On the Indiana-Oregon test, our observation of a distinction between the 'analytic' ("nature of change") factor and the more 'intuitive' (preference for the better version) factor probably parallels findings with other tests. McLeish's results with the Oregon test do not reveal this, possibly because he extracts a large general factor.

On the other hand, the failure of the Rhythm, Harmony and Melody variables in the Indiana-Oregon and the Wing tests to link is somewhat unexpected. Our finding of separate factors for each of the different tests again is not typical, though there are some (minor) factors in the literature of this nature (e.g. in Vernon, 1950; Franklin, 1956). Our split of the Wing Appreciation factor into (a) Rhythm and Intensity and (b) Harmony and Phrasing probably cannot be explained in terms of our factoring factoring/

factoring procedures. Yet it is unique, especially since the latter combination is not one found in earlier work.

One of the problems in attempting to decide whether our results genuinely parallel older results, stems from the lack of agreement between different studies - the point emphasised by Whellams (1973). We believe that our findings parallel those in older works tolerably well and that the test factors should not automatically be deemed invalid, although there are some limitations due to the input chosen for the factor analyses. Scrutiny of the factors arising from the questionnaire data suggest they are not contaminated by dubious test data and that they can be evaluated separately.

There is no work which provides a nice parallel for our analysis of the questionnaire data. In previous studies, available information has not been factor analysed as ours has been. The main reason is that these studies have tended to focus on one topic which is dealt with in depth. Indeed it may be that topics such as musical taste or performing skills are seen as essentially separate aspects of musical interests or behaviour. If this is so, then this would suggest that our findings of separate factors is congruent with generally held beliefs about music.

Conclusions

A satisfactory structure of musical abilities, interests, experience etc. has been outlined. The number of identifiable factors and their robustness is of some importance in view of the fact that the coefficients obtained when the variables are intercorrelated are relatively low. These factors indicate the existence of a good number of different aspects of musicality, none of which automatically identifies itself as an 'appreciation' factor. In the factor analytic results we have presented, the topics discussed in the theoretical writings are educed, but not in any clear way. It could be argued that factors of music appreciation were not identified because the search was not properly carried out. However, if the variables employed (i.e. the variables drawn from the tests and the questionnaire) were irrelevant to music appreciation, then music appreciation, like the hexohippus, would be too rare to be worth bothering about.

There remains the task of deciding which of our factors we shall call appreciation factors - whether none, some, or all. Factor analysis can never remove this task, but it can and does simplify it. However, the decisions made concerning the subjective but, we hope, informed decisions about what constitutes 'music appreciation' are the subject matter of the next chapter.

CHAPTER 9

CONCLUSIONS REGARDING THE NATURE OF MUSIC APPRECIATION

The Content of Music Appreciation

In attempting to consider how music appreciation may best be described, we take into account our two separate practical investigations and the theories and ideas propounded in the literature. We recognise that any definition or discipline is, by its very nature, subjective. However our stipulations will, we believe, be based on dependable evidence. As a consequence we hope to discuss music appreciation in 'real' rather than merely 'lexical' terms.

Performing as music appreciation: One point that characterises much of the writings on the subject is the emphasis laid upon the needs of the listener. When church music became too complex, it was simplified. As secular music became more complex, more attention was devoted to assisting the listener to benefit from it, to such an extent that within music education 'music appreciation' movements developed. Our own questionnaire to musicians based upon the review material accepted this standpoint and none of the respondants suggested that music appreciation went beyond the 'listening' aspects of music. However, it is proper to consider, as a fundamental question, whether 'appreciation' ought to be limited to what is involved in listening.

When discussing Scholes disagreement with the American viewpoint regarding the nature of music appreciation, we pointed out that the performer needs to monitor his own performance and that this requires listening skills. Although this may be true, it is not adequate grounds for denying that performance may be a valid aspect of appreciation. We believe, quite positively, that performing should be included under appreciation.

In the previous chapter we emphasised that the performing factors were relatively independent of test factors, and supported this by reference to low correlation coefficients. The implication of this is that performers are very variable in the listening skills for monitoring their their/

their own performances, although for some a high level of technical skill may possibly compensate for this to some extent. Should such persons be described as having little appreciation because their listening skills are weak? Do they have less appreciation for music than those who have no interest at all in performing but who have 'a musical ear'? We do not necessarily think so. Performing, by itself, may be sufficient for appreciation though, of course, if performing skills are accompanied by listening skills, so much the better.

Of special interest in relation to this is our factor, 'self-initiated interest and activities'. This involves an active approach to music in learning an instrument and/or in participating in a musical group. We have no doubt that many (though not all) of those with this 'self-initiated interest' have but mediocre abilities, whether judged by level of performing skills or by test score. Equally, they may not have classical tastes or have any positive response to what would often be described as 'good' music; their judgement of quality in music may often be at variance with that of 'experts' and the musical élite. However, despite possible failure to meet many of the traditional criteria of being musically appreciative, the positive and active involvement makes us feel that this should not be excluded from music appreciation. In support of this we might look at the controversy as to the relative importance of the intellectual skills brought to the processes of listening and the emotional experience or satisfaction produced as a result of listening. Our questionnaire study with musicians confirmed the evidence of the literature that a sizable proportion of musicians see the arousal of an emotional response, such as liking or pleasure, as being sufficient to characterise appreciation. If this can be true with listening, then a liking for performing must also merit the name appreciation. This will apply no matter what the technical standard the performance of the music is, and will include our factor of 'self-initiated interest and activities'.

It will be recognised that we are allowing the concept of music appreciation to be very broad here. One might ask, "Does any 'do-it-yourself' performance of music merit inclusion?". However, there is one restriction implicit in the wording of this question that must be made explicit. It is that we are concerned with performance of music. Although there is still the problem of knowing what may or may not be described as as/

as 'music', this does remove from the category of music appreciation some of the more contentious possibilities (such as a flippant rendering of the national anthem on 'comb and toilet paper'). Nonetheless, the stance we are taking is designed to ensure that nothing that might reasonably be considered as music appreciation is excluded, even though there is a risk of including some dubious activities.

Our argument that performing be considered a valid aspect of appreciation applies generally to all performing. It is appropriate, therefore, that all three factors of performing that we identified be considered as different forms of music appreciation.

Listening skills and music appreciation: Whatever the importance of performing, listening must not be overlooked. Two aspects of the processes of listening are of special interest in highlighting some of the issues here, i) an intellectual understanding of music and ii) an evaluation of music. The need for an intellectual understanding of music appears, in many guises, in the literature. In our own factor analyses two factors are concerned with the fundamental, though seemingly low level skills required for understanding of music to occur. These are the factor of 'Performance on Wing's Ability Tests' and the factor of 'Performance on the Indiana-Oregon Test' which has high loadings on the analytic elements of the test. Factors of abilities of this nature are commonplace in reported analyses, though there are differences as to the precise skills they deal with.

Just as we have factors which relate to an intellectual understanding of music, so we have factors relating to its evaluation. The factor 'Performance on Wing's "Appreciation" Tests' and the factor of 'Discrimination on the Indiana-Oregon Test' (p.150) both describe the ability to recognise the 'better' of two versions of a piece of music and so are concerned with 'evaluation'. It could again be said that these factors are concerned with only a low, though possibly fundamental, level of evaluation.

We have drawn a distinction between two aspects of the listening processes. However, we believe this is possibly the same distinction as the one, most clearly evident in the music test technology, between "analytic ability" and "appreciation". Whether it is right to equate these distinctions, depends upon whether it is proper to classify what the the/

the tests and factors measure as being either 'intellectual understanding' or 'evaluation'. If it is not, then it is difficult to understand how the technology can be dealing with the real essence of music rather than with trivia. If it is, then we believe that Analytic Ability/Intellectual Understanding is a more important aspect of music appreciation than 'Appreciation/Evaluation'.

Most writers argue that some intellectual understanding is essential in appreciation, and this is confirmed in our musicians responses to the questionnaire. This is also the essence of what the 'music appreciation movement' was concerned with. That ability and aptitude tests do not specifically claim to measure appreciation and deal with fundamental, rather than high level, skills is, we believe, immaterial. It is ironical that the appreciation tests and our 'appreciation' factors could be seen as being of less importance to music appreciation. But certainly, evaluation of music is mentioned as being of relevance as an integral part of music appreciation by a smaller proportion of writers than discuss the intellectual skills of listening: from the relative lack of discussion of 'evaluation' in the literature, and from our own questionnaire results, evaluation is not generally considered a necessary aspect of music appreciation. One possible reason is that evaluation is less valued because of the lack of absolute standards - a lack which is regularly remarked on in critiques of tests. It might be noted, in this context, that tests of basic Analytic Abilities are more widely used than 'appreciation' tests.

The inescapable conclusion must be that both these aspects of listening should be allowed under the umbrella of music appreciation.

Whilst there may be little doubt of the desirability of including the skills of understanding music under the heading music appreciation, there is considerable doubt as to which, if any, particular skills are necessary. Different writers have totally different emphasis. Factor analytic studies, including our own, tend not to provide consistent results as to what these abilities may be. In our questionnaire study with musicians, we remarked upon the lack of consensus as to which skills are necessary for music appreciation (p.130). There appears to be progressively less agreement as progressively more detail is sought.

Emotional response and music appreciation: From the findings with our group of musicians, making of some emotional response to music characterises music appreciation and emotional response is more important than intellectual understanding. Much of the literature supports this, often quite explicitly. In the historical context, music, when it was not functional as in the case of church music, was intended to lead to enjoyment, e.g. dance music, singing, the development of brass bands and choral traditions. More recently we have the point made by Wallach that works of art, and this includes music, are recognisable by their effect which is an (emotionally) satisfying one. L. B. Meyer's theory rests upon the observation that in music there are parts at which inner tensions are aroused in the listener. Where no tension (emotion) is aroused, there can be no resolution of these tensions: the musician's art has failed and there is no possibility that music appreciation can exist. Studies of the character of music (as Zine,1960, has pointed out) investigate what affective quality is projected onto the music by the listener.

All these different lines lead us to the conclusion that emotional responses to music are important, that there are not usually specified stimuli to which the responses are to be made, and that this all is regularly considered under the heading of music appreciation. But if the place of emotional responses in music appreciation is accepted, there follows the problem as to what these emotions should be. The distinction made by Payne between the aesthetic emotion and normally experienced emotions may be valid, but in the instances referred to in the previous paragraph (and in most listening) normal life emotions are envisaged. We would not restrict music appreciation to situations where the aesthetic emotion is experienced. That pleasure, liking, satisfaction (3 closely related concepts) are of paramount importance is evident from the literature. We are therefore willing to include as music appreciation taste for serious music. Indeed, since there are few who would specify the stimulus situation for the response (other than stating it must be music) we believe it would be proper to include any/all musical* tastes.

*How broad the concept of music should be is another matter. We have not been at all restrictive in our usage of the term. Thus the "music" made in some 'groups' by those with a 'self-initiated interest and ability (Factor VII) or the "music' heard at 'pop' concerts (Factor VIII) would not be considered as music by many serious musicians. We do not accept this narrow viewpoint and we have not been nor shall we be restrictive in our usage of the term music.

A Conceptual Framework for Music Appreciation

It is disappointing that the confusion evident in the literature is paralleled in the findings of both of our practical investigations, even although this was not an entirely unexpected outcome. However as a consequence, there has been much we have felt obliged to include under the general heading of 'music appreciation'. Yet all that has been achieved so far is little better than a cataloguing providing a list of possibly legitimate aspects of music appreciation. What is required is some conceptual framework for music appreciation which can accept all we wish to include within it.

At the outset, one must beware of believing that there is any such thing as 'music appreciation': there is not; to believe there is, is to indulge in reification. In the theoretical discussion of this point, let us draw an analogy with intelligence*. What people do, or how they act may (or may not) be described as intelligent. The adjective 'intelligent' merely provides a description of particular behaviours. It is only when such behaviours regularly occur that one talks of the person as having 'intelligence'. From the behavioural evidence we make, for our own convenience, the construct (concept) 'intelligence'. What is included in this construct depends upon what kinds of behaviours may be described as intelligent behaviours. In the broadest sense, this is culturally determined, but to some extent it must also be subjectively determined. Similarly, what people do and how they behave, in a musical context, may, or may not be, described as 'appreciative'. Once more the description of specific behaviours is a central feature and, as with intelligence, the particular choice of behaviours that are labelled 'appreciative' is to some extent subjectively determined. Furthermore, just as there is a virtually unlimited number of ways of being intelligent, so there are a great many ways of being musically appreciative. That there are many different ways of being intelligent is no scandal. Consequently we believe that it is quite valid for us to describe many different kinds of behaviour as appreciative - and therefore of showing appreciation.

Implicit in the reasoning above is an acceptance that the concepts 'intelligence' and 'music appreciation' are disjunctive concepts; that there there/

*Here my ideas are largely shaped by Miles' (1957).

there are many alternative ways of being intelligent or musically appreciative. This we firmly believe provides the most useful conceptualisation for music appreciation. However, it is here that a distinction should be made between music appreciation and intelligence. With the latter, if a person engages in one form of behaviour which is generally described as intelligent, then in other situations he is fairly likely to engage in other 'intelligent behaviours'. There are reasonably high correlations between different intelligent behaviours. With music appreciation, the correlations tend, we believe, to be rather lower. It is impossible to have any rigorous test of this belief in view of the number of ways of being either intelligent or musically appreciative. At best, one can support one's views by reference to very limited and possibly biased information. For example, in factor analyses of school pupils' work, the correlations and factor loadings which justify the general factor, 'g', that is often equated to intelligence, are frequently higher than those we have on our general factor of musical appreciation. (See page 171 and Appendix 18.)

This is, however, a minor point which is raised to suggest that in music appreciation we are dealing with a concept that is genuinely more disjunctive than intelligence is. Since this is a quantitative difference, and no matter of principle is involved, this does not invalidate our argument or the analogy we drew with intelligence.

Our Views on what Music Appreciation is

Our position, then, with regard to 'music appreciation' can be summarised as follows. Music appreciation is a disjunctive concept. There are a great variety of different kinds of behaviour any one or any combination of which can characterise music appreciation. It is of absolutely no consequence that the different kinds of behaviour are seemingly or genuinely independent: indeed, this is no more than a reflection of the disjunctive nature of the concept. The choice of behaviours which constitute musical appreciation is inevitably somewhat subjective.

Our choice (which is the subject matter of the first section in this chapter and which need not be further elaborated upon) has we believe three characteristics which may commend themselves.

1. It is in accord with established usages of the term music appreciation.
2. It is broadly based.
3. It is supported by factor analytic evidence that we are dealing with 'real' musical phenomena.

We have not provided a definition of music appreciation since, to do so, implies a conjunctive concept. Our approach may seem less tidy. Yet, we believe that the statement that music appreciation must be treated as a disjunctive concept, together with the outline of the main aspects of it, provides an honest and elegant solution to a difficult question. Such a solution has not previously been made explicit, though it may have been implicit in some work. However, making it explicit does have clear implications for making investigations into music appreciation more systematic.

Implications for the Remaining Planned Investigations

Our factorial study of the many aspects of music appreciation was but one half of the school based study. For the second half, the investigation of the relationships between personality and music appreciation, some measures of the latter are required. Since we accept that music appreciation is a disjunctive concept, we require a measure (or measures) for each separate identifiable aspect. Our factor analysis produced twelve major 'factors' with sub-divisions in each. All but one of these (the family background factor) falls into one of three main categories of appreciation:

1. test abilities;
2. performing abilities and interests;
3. taste.

For/

For each 'factor' the results of the factor analyses are used to select the key variables. These then provide the measures of music appreciation that are used in the analysis of the relationships between personality and music appreciation.

The semantic differential results were not included in the factor analysis. Yet in the light of our discussion of the nature of music appreciation, these obviously must be of relevance. The next chapters which consider the personality correlates of music appreciation make use of them as well as of the variable derived from the factor analyses.

Our factor analysis which has provided one focus for our work is based on the results of school pupils only. But, in studying the relationship between personality and music appreciation, we are investigating the personalities of musicians and music students. This is appropriate since we have argued that performing abilities and musical interests merit inclusion as behaviours or attitudes indicative of music appreciation.

PART IV

PERSONALITY IN RELATION TO MUSIC APPRECIATION

CHAPTER 10

THE PERSONALITY CORRELATES OF MUSICALLY APPRECIATIVE SCHOOL PUPILS
I THE BASIC FINDINGS

The Home Background and Musical Interests of the School Pupils who were the Subjects

A brief description of the background and musical interests of our subjects seems appropriate before a consideration of the personality correlates of various indices of their music appreciation. This will allow some basic descriptive data to be presented. Although much of it may not be essential, it is useful for setting the scene and some of it is of real interest. Its most important function is to describe the population on which the findings are based so that the proper limitations on their usefulness may be recognised. This is especially important since our subjects are not a representative sample of the school population in the education authority used. It is believed that there may be a slight bias favouring the more intelligent and those from higher (rather than lower) social classes. Such a bias could be expected to give families that are more musical than the average an advantage. Apart from this, the number of musical children selected in each school is greater than would have been obtained by taking a representative sample.

The home background of the subjects: In only a quarter (24%) of the families represented in this study does either (or both) of the parents play an instrument or sing. The great majority of those who are musical (almost 80%) play the piano. Stringed instruments are favoured by about 10%. The number of parents who sing is not clear. Few of our subjects seem to have considered their parents to be singers. The reason for this may be that no explicit criteria were provided for our subjects. It is possible that to rate as a singer, a parent must currently be (say) an active member of a choir and those parents who merely sing (to themselves) as they go about their work at home are rated as non-singers. On the other hand, those who sit and play the piano - even for just a few minutes in the week - are rated as 'playing the piano'. However, if our subjects do not consider consider/

consider their parents to be musical even when they do sing, it is possible that these parents have minimal influence musically on their children.

Parents' music making seems very conservative (and this may be a function of their age and/or of the times in which they grew up). The siblings of our subjects seem a little less conservative. Just under 30% of them play an instrument - a proportion not very different from their parents. However, of those who do play an instrument only about 40% play the piano. About 20% play guitars, and a similar proportion woodwind instruments (mainly recorders and/or clarinets). There is little doubt that the relatively high proportion of woodwind players reflects traditions in the education authority used. We believe this is the case here, even although the recorder is a much more widely used instrument than formerly.

One item in the questionnaire was concerned with the amount of family music making. In 50% of families there is never any communal family music making and in 25% it is very rare. But in about one family in four it occurs fairly regularly, if not frequently. This seems to indicate that in quite a high proportion of families where more than just one member is musical, the several musical persons do enjoy playing together from time to time.

In considering home background, we have focused on what parents/siblings do. It is just as relevant to ask what instruments there are in the home. Most surprising is the total number of musical instruments shared by our subjects - on average nearly two instruments for all the families represented, and only about one family in 5 has no instrument. Table 10 - 1 shows the distribution.

Number of Instruments at Home	% of Homes
8	1
7	1
6	3
5	5
4	6
3	13
2	25
1	23
0	22

TABLE 10 - 1 PERCENTAGE FREQUENCY DISTRIBUTION OF NUMBER OF MUSICAL INSTRUMENTS IN THE HOME

What the instruments are presents a few surprises. In 45% of homes there is a piano (89 pianos). There is a not dissimilar number (85) of 'popular' stringed instruments, such as guitars and mandolins.* However, they are found in rather fewer families since there are some families with two such instruments (say a guitar and a mandolin) whereas there are no families with more than one keyboard instrument. In order of popularity, there follows woodwind instruments (64 - mainly recorders and clarinets) the classical stringed instruments (45 - mainly violins), and brass instruments (16). Over and above this there is a very considerable number of other instruments. Some are quite standard, e.g. there are 8 drums, or set of drums (more a reflection of an interest in pipe bands than dance or jazz bands). But there is also a good number of rare or bizarre instruments, such as zither and ocarina.

Just as there seems to have been adequate opportunity for most of our school pupils to indulge in performing on some instrument if they so desired, so there has been the opportunity to hear music in their homes. In only 10% of homes was there no record player and there were as many homes with stereo as with mono equipment. Furthermore over 60% of the homes had tape recorders.**

The subjects of this investigation: The subjects of this investigation are not very different from their siblings. However, it is possible to provide fuller documentation about them. Table 10 - 2 indicates how many are (or have been) members of an orchestra, of some other musical group, or of a choir, and for how long.

The most common form of musical activity is singing. More than half of the subjects sang in a choir, 94 in a school choir, 34 in a church choir and 13 in some other choir. It might be noted that not all the church choristers were also in their school choirs. In view of their age, our subjects' length of service as choir members (nearly 3 years on average) is quite impressive. About a quarter of the subjects were orchestra members members/

*A distinction is made between stringed instruments such as the guitar or mandolin and those which are orchestral instruments, such as violin or 'cello. The musical distinction between plucked and bowed instrument here is relatively unimportant. The real distinction is between 'popular' and 'orchestral' instruments.

**As this data was collected several years ago, it is likely that at the present time even more homes have good sound reproducing equipment.

members and many had quite considerable experience. Over half of these

Years a Member	School Orchestra	School Choir	Church Choir	Other Musical Group
7 or more years		8	1	1
6	6	3	6	
5	6	10		2
4	6	17	7	2
3	13	15	2	6
2	10	24	8	5
1	1	13	10	9
Less than 1 year	7	4	1	6
Number of subjects who are members	49	94	35	31

TABLE 10 - 2 NUMBER OF MEMBERS AND LENGTH OF MEMBERSHIP FOR SCHOOL ORCHESTRA, CHOIRS AND OTHER MUSICAL GROUPS

orchestra members (27) also had played at some stage in a county youth orchestra. The third form of musical activity listed in the questionnaire, playing with some musical group organised from outwith school, claimed 31 persons. The type of groups is of interest, and this is tabulated below.

Type of Groups	Frequency of Membership*
String Quartet or Chamber Group	4
Recorder Group	8
Brass Ensemble	2
Brass Band	2
Rock or 'Pop' Group	6
Folk Group	4
Jazz Band	3
(Scottish Country) Dance Band	1
Pipe Band	7

*The total is more than 31 since 6 persons were members of two groups and for each of them there are two entries

TABLE 10 - 3 FREQUENCY OF MEMBERSHIP OF MUSICAL GROUPS ORGANISED OUTWITH SCHOOL

The range of musical activities engaged in by our subjects is wide and the numbers involved is great. This, not surprisingly, is reflected in the instruments studied.

Sixty have studied the piano and many for quite a long time (see Table 10 - 5). However, at the time of the study, only 19 of this 60 still were studying the instrument. Similarly only about one third (39) of the 108 who had studied another instrument were still studying it. Of the 79 who had taught themselves an instrument, 42 still actively played it.

The pattern of preference for instruments is tabulated in Table 10 - 4.

Type of Instrument	1st Study	2nd Study	Self Taught Instrument
String	31	2	-
Woodwind	49	7	27
Brass	9	3	2
Guitar etc.	9	2	27
Percussion	3	-	5
Other (e.g. Bagpipes)	6	1	7

TABLE 10 - 4 NUMBER OF PUPILS PLAYING VARIOUS TYPES OF MUSICAL INSTRUMENT

Some explanation of the Table 10 - 4 is necessary. The table does not include study of the piano, although quite a number of the school pupils studied the piano and an orchestral instrument. Since a number of subjects studied two, often related, instruments, there are separate columns for their 1st and 2nd studies. The predominance of woodwind, including recorders, and stringed instruments (strictly bowed instruments, since the plucked ones are all included under the heading "Guitar etc.") is not surprising, though strings might have been expected to outnumber woodwind.

Among the self taught, the popularity of guitars is entirely predictable, but the equal popularity of woodwind, most certainly is not. Overall the number of pupils with skills on woodwind instruments greatly exceeds the number with skills on other groups of instruments - including piano.

The seriousness of the study of musical instruments, and possibly some indirect and rather unreliable estimate of performing ability, can be gauged by the number of years spent learning the instrument.

In Table 10 - 5 there have been excluded those who studied (or possibly tried out) an instrument for less than one year. Pianists (or possibly their parents) seem to have the greatest stamina. It is possible that the figures may distort the true picture for many children start

start/

start "piano lessons" before they might start on another instrument.

	Piano	Other Instrument Taught by a Tutor (1st or 2nd Study)	Self Taught Instrument
7 or more yrs.	8 (16%)	14 (13%)	5 (8%)
5 or 6 yrs.	11 (21%)	17 (16%)	6 (10%)
3 or 4 yrs.	16 (31%)	21 (20%)	20 (33%)
1 or 2 yrs.	17 (32%)	54 (51%)	30 (48%)

TABLE 10 - 5 LENGTH OF TIME STUDYING A MUSICAL INSTRUMENT

Certainly the drop-out rate is almost the same for piano (68%) as for other formally taught instruments (65%). The best explanation may be that our school pupils have stopped their musical studies because the imminence of leaving certificate examinations is in their mind, rather than because of a lack of interest or stamina, and this would affect all instruments equally.

To complete this brief picture of the school pupils who are the subjects of this part of the investigation, reference must be made to one further kind of musical activity, concert going. Our subjects' responses concerning how often they attended concerts, either of serious/classical music or of pop or folk music are presented in Table 10 - 6.

Frequency	Concerts of Serious/Classical Music	Concerts of Pop/Folk Music
As often as possible	6	6
Fairly often	6	8
Occasionally	37	46
Never	51	40

TABLE 10 - 6 FREQUENCY OF CONCERT GOING (FIGURES ARE PERCENTAGES)

It is evident that only a minority of those who engage in other musical activities go to concerts. Possible reasons are the difficulties and cost of travelling - which were not inconsiderable for the majority of our subjects - or parental pressures to spend time on "more worth while" matters. Whatever the reasons, concert going had not become, and was unlikely to to/

to become, a habit. It is interesting to note the similarity of the results for attendance at pop concerts and serious concerts. The popularity of pop/folk music (p.224) might lead one to expect a considerably higher proportion of people attending this kind of concert.

The Nature of the Analyses and the Reporting of Them

Theoretical background: The problem of correlating personality variables with music appreciation has already been discussed because there is no one thing, music appreciation. There are a number of separate 'factors' that can be described as being related to, or components of, music appreciation and the personality correlates with these factors, or the variables associated with them, are required.

In practice, it was not possible to correlate measures of personality with the music factors. 'Factor Scores' (i.e. scores which are aggregates of the scores for each variable in which differential weighting produces as pure a measure of the factor as possible) could not be determined for all the factors and so were not used for any of them. This is no major drawback. Some psychologists disapprove in principle of using the results of factor analysis as the criterion measures for further correlational study. They argue that one should either make use of larger factor analyses so as to include all variables under investigation or carry out the further correlational studies by making use of variables which have a clear theoretical importance.

Since the factors that emerged from the factor analysis can be interpreted in a straightforward manner, and since they parallel the different aspects of musical abilities and experience (that were discussed in Chapters 8 and 9) and since for each of these factors there are one or two 'key' variables, that is variables with high factor loadings, it is right in theory, as well as convenient in practice, to select the key variables that have enabled the factors to be identified as the criterion variables for determining personality correlates.

Eleven of the 12 factors identified in Chapter 8 are of direct relevance. The factor concerned with 'Family background' is not relevant in the same way. The theoretical position adopted on this matter can be diagrammatically illustrated. On the right hand side are the

the/

the independent variables: on the left hand side the dependent variables.

The main topic under investigation is the relationship between personality and the musical characteristics of the individual. Yet also of very real concern is how musical background may influence musicality: more generally what one must consider is the relationship between 'background' and 'musical characteristics', since there may be an interaction - as, for example, when music making in the home is one of a number of influences which determines a person's performing abilities and this increasing skill leads to an increasing amount of music making in the home. The relationship between the individual's personality and the extent to which his home background is musical is of minimal direct relevance in this study.

Presentation of the results: Two parallel types of information have been used in the analyses. First is the matrix of correlation coefficients between the music and the personality variables. For the second, the scores on each personality variable are broken down according to the musical criteria (and one-way analyses of variance are used to test for statistical significance).

The latter method was not appropriate for all the musical variables but the former method was. As it is, therefore, the more comprehensive, it has been used as the basis for analysis and reporting. However, where the breakdown of results is instructive, the appropriate figures are cited. The complete correlation matrix used is to be found in Appendix 16.

In the interpretation of the matrix to find the personality correlates of music appreciation, it is necessary to consider if there is a consistent pattern of results for each personality factor. To do this, the precise magnitude of the correlation coefficients is of less importance than any similarity in the magnitudes of equivalent coefficients. To make the presentation simple yet intelligible - so that the patterns will stand out - the tabulation of the results merely provides the sign of each each/

each correlation coefficient (i.e. positive or negative) and the level of statistical significance of the coefficients. A simple inspection of the tables (making use of no one criterion* in isolation) enables the personality of the musically appreciative to be discerned. Although "eyeballing" the results in this way is not a rigorous technique, this does not matter too much at this stage since only what is basic is being described. Where the deviations from the basic pattern of personality are discussed, greater rigour is desirable, and it is fairly easily achieved.

One problem that seemed initially to be important was determining the number of key variables to use for any one factor. The importance of this diminished on finding that with the test factors (the first considered in detail) it mattered little which of the pertinent variables were selected: the pattern of results was essentially the same with them all. This was also found to be more or less true when variables for many of the different factors were investigated. In consequence the choice was determined as much by the importance of a variable as by its factor loading, in the original factor analysis, and normally only one or two variables were selected for each factor. Even so, over 20 musical variables are considered and correlated with 19 personality factors.

Because of the extent of the agreement as to the personality profiles associated with the different factors (or variables) of music appreciation, this chapter presents the basic profile and the significant and interesting variations on this basic theme and the influences of the home background are described and discussed in Chapter 11.

In Appendix 33, there is a brief summary of what is measured on the various dimensions of the H.S.P.Q., the personality test that provided most results. The J.E.P.I. was also used and this measures extraversion and neuroticism (emotional lability).

---

*e.g. the statistical significance of the correlation coefficients.

Variable	Factor	J.E.P.I.		H.S.P.Q.																
		E	N	A	B	C	D	E	F	G	H	I	J	O	Q2	Q3	Q4	QI	QIII	QIV
*Performance on Wing's 'Ability' Tests (1 - 3)	I	-	-	+ .05	+ .001	-	-	- .05	+	+	+	+ .05	-	-	-	-	-	+	- .01	- .01
*Having studied piano	I	-	-	+	+ .01	-	+	-	-	+	-	+ .05	-	-	+	+	+	-	- .01	-
*Performance on Wing's 'Appreciation' Tests (4 - 7)	II	-	-	+ .05	+ .001	-	-	-	-	+	+	+ .05	- .05	-	-	-	+	+	-	- .001
*Performance on Wing's Tests 4 and 6	II	-	-	+ .001	+ .01	-	-	-	-	-	-	+ .01	-	+	-	-	+	-	- .01	- .01
*Performance on Wing's Tests 5 and 7	II	-	-	+	+ .001	-	-	-	+	-	+	+	- .05	-	-	-	-	+	-	- .001
*Performance on the Indiana-Oregon Test	III	+	-	+ .01	+ .001	-	-	-	+	+	+	+	-	-	- .05	+	+	+	-	- .05
*Discrimination of better version on Indiana-Oregon	III	+	-	+ .001	+ .001	-	-	-	+	+	+ .05	+	-	-	-	+	-	+ .05	-	-
*Performance on Martin's Test	IV	+	-	+ .001	+ .05	-	+	+	+ .01	-	+	+	- .05	- .05	- .05	-	-	+ .05	-	- .05
*"Test Factors" (see page)	I + II + III	-	-	+	+ .001	- .05	-	- .05	-	+ .05	+	+ .05	-	-	-	-	+	+ .05	-	- .01

TABLE 10 - 7 SIGNIFICANCE OF THE CORRELATION COEFFICIENTS BETWEEN THE PERSONALITY FACTORS AND THE KEY MUSICAL VARIABLES FOR THE FACTORS OF TEST PERFORMANCE

Variable	Factor	J.E.P.I.				H.S.P.Q.														
		E	N	A	B	C	D	E	F	G	H	I	J	O	Q2	Q3	Q4	QI	QIII	QIV
*Membership of school orchestra	V	+	-	+ 05	+ 05	-	-	-	+	+	+	+	-	-	-	-	+	+	-	- 01
*Number of years in school orchestra	V	+	-	+ 05	+ 01	-	-	-	+	+	+	+ 05	-	-	- 05	-	+	+	-	- 001
*Studying an instrument other than piano	V	+	-	+	+	+	- 05	-	-	+ 05	+	+	-	-	-	+	-	-	-	- 05
*Membership of school choir	VI	+	+	+	+	-	+	-	+	-	+	+	- 05	+	-	-	+	+	-	-
*Membership of church choir	VI	+	-	+ 05	+	-	-	-	+	+	+	+	-	-	-	-	-	+	-	-
Having taught oneself an instrument	VII	+	-	+	+	+ 05	-	+	+	+	+ 05	-	-	-	-	+	-	+	+	-
Member of a non-school music group	VII	-	+	+ 05	+ 05	-	+	-	-	+	-	+	+	+	-	+	+	-	-	+

TABLE 10 - 8 SIGNIFICANCE OF THE CORRELATION COEFFICIENTS BETWEEN THE PERSONALITY FACTORS AND THE KEY VARIABLES FOR THE FACTORS OF PERFORMANCE AND PERFORMING ABILITY

Variable	Factor	J.E.P.I.			H.S.P.Q.															
		E	N	A	B	C	D	E	F	G	H	I	J	O	Q2	Q3	Q4	QI	QIII	QIV
Attendance at Folk/ Pop concerts	VIII	+ 001	-	+ 01	-	+	+	+	+ 01	-	+ 01	+	-	+	-	-	+	+ 001	+	+
Taste for Pop music	VIII and IX	+ 001	+	+	-	+	-	+	+	-	-	-	- 05	+	- 001	- 05	-	+	+	- 05
Taste for Jazz music	VIII? XI	+ 001	-	+ 01	+	+	-	+	+	-	-	+	- 01	-	- 01	-	+	+ 01	-	- 05
*Taste for Orchestral music	IX	- 05	-	+	+ 001	-	-	- 05	+	+ 01	+	+ 001	+	-	+	+	-	-	- 001	-
*Taste for Chamber music	IX	-	-	+	+ 01	+	- 05	-	+	+ 01	+	+ 01	+	- 01	-	+	-	+	- 05	-
*Attendance at concerts of classical music	IX	-	-	+ 05	+	-	-	-	-	+	+	+ 01	+	-	+	+	-	+	- 05	-
Taste for Folk music	X	+	+	+	+	+	-	-	+	+	-	+	-	-	-	-	-	+	-	- 05
Taste for Scottish music	X	-	+	-	+	+	-	-	+	+	-	+	-	-	-	+	-	-	-	-
Taste for music from shows	XI	+ 05	+	+	+	-	+	-	+	+	+	+	-	-	-	-	+	+	-	-
Taste for Latin-American music	XI	+ 01	-	+	-	+	-	+	+	+	+ 05	+	-	-	-	-	-	+ 05	+	-

TABLE 10 - 9 SIGNIFICANCE OF THE CORRELATION COEFFICIENTS BETWEEN THE PERSONALITY FACTORS AND THE KEY VARIABLES FOR THE FACTORS OF MUSICAL TASTE

The Results

In Tables 10 - 7 to 10 - 9 there are 17 musical variables (all of which are asterisked) which have some kind of bearing on classical or serious music, i.e. the variables associated with Factors I to VI and Factor IX. It is quite evident from these tables that there is a small number of personality factors (all from the H.S.P.Q.) which consistently tend to give significant correlations with these variables. These are listed below in an approximate order of importance (though as there is no single appropriate criterion of importance, this listing is, to some extent, subjective). Since the factors are described by reference to their polar extremes, the extremes of the musically appreciative are underlined.

Factor	Description of What it Measures	Number of Significant Results
B	Low intelligence v High Intelligence	13
Q IV	Field Dependence v Field Independence	10
I	Toughminded v Tenderminded ('Presmia' = Emotional Sensitivity)	9
A	Reserved v Warmhearted, Outgoing	9
Q III	'Pathemia' (feeling, not thinking) v 'Cortertia' (Tough Poise)	6

TABLE 10 - 10 THE PERSONALITY FACTORS WHICH MOST OFTEN CORRELATE SIGNIFICANTLY WITH MUSIC VARIABLES

Of possibly less importance are the factors for which there are few significant correlations, but where there is consistency in the sign of the correlations. Such factors are listed in Table 10 - 11 and must be considered to have some possible relationship with musical appreciation. However, they are of less importance than the factors listed in Table 10 - 10, and those low on the table are less important than those high on it.

Factor	Description of What it Measures		Number of Significant Results	Number of Exceptions where the Sign is Reversed
G	Disregards rules	v Conscientious (Superego Strength)	4	4
J	Zestful (Likes Group Action)	v Circumspect Individualism	4	3
E	Obedient	v Assertive	3	1
Q_2	Socially Group-Dependent	v Self sufficient	3	3
C	Affected by Feelings	v Emotionally Stable (Ego Strength)	2	2
O	Self assured	v Apprehensive	2	2
D	Undemonstrative	v Excitable	2	3
H	Shy, Timid	v Adventurous	1	2

TABLE 10 - 11 PERSONALITY FACTORS WHICH CORRELATE CONSISTENTLY, IF NOT SIGNIFICANTLY, WITH MUSIC VARIABLES

An interesting (and relevant) theoretical problem arises with factors like 'H'. One significant correlation coefficient out of 16 seems no better than chance. Yet 14 positive correlation coefficients indicates a consistency that could imply some real relationship, even if the strength of the relationship is slight. Application of the 'sign test' (see, e.g. Siegel, 1956) suggests that the same kind of relationship (in this case, 'a positive correlation') being found in 14 out of 16 independent comparisons is so rare as to be statistically significant. However, it could be argued that because the music variables are correlated, the correlations with any one personality factor are not independent*, and so the sign test is inappropriate as it would exaggerate statistical significance. Nonetheless, the reasoning behind the sign test, that consistency over many results (none of which, by itself, is statistically significant) can imply significance over the whole set of results, may have a limited validity in interpreting the results of Table 10 - 11. There is no more reason to believe that the consistency results purely from the overlap in the music variables than to believe it purely reflects the relationship with the personality factor.

*Indeed in this case, it could be argued, no more than 7 independent aspects (factors) of musical appreciation are represented.

Of the 6 factors not so far listed in the Tables 10 - 10 and 10 - 11 only one, Neuroticism from the J.E.P.I., has correlation coefficients which consistently have the same sign. However, none of these reach significance and they are inconsistent with the results of factor C of the H.S.P.Q. The correlations of the other 5 variables seem to be distributed more or less randomly around zero.

The listings in Tables 10 - 10 and 10 - 11 provide the raw material required for describing the personality of the school pupil who appreciates classical serious music.

The Musically Appreciative Personality

Several aspects of the musical individual's personality are evident from the tables. However the overall picture contains no unexpected paradoxes; there is a nice consistency in the findings.

The most important single factor to correlate with musical appreciation is intelligence. The correlation coefficients obtained are statistically highly significant and with the test variables they are of the order of .3 or .4. (For example, the correlation coefficient between the H.S.P.Q. factor B and the variable "Test factors", which provides a composite of scores from the Wing 'Ability' Tests, the Wing 'Appreciation' Tests and the Indiana-Oregan Test*, is .43.) The other musical variables lead to slightly lower coefficients, but as they are of the order of .2 to .3, they are still as high as many of the results in the literature. That intelligence correlates with music appreciation is not surprising: that it should correlate so highly is a little surprising. However, the figures are probably quite trustworthy, and the population tested is possibly more representative than many that have been used in other studies. Our finding supports the argument of Sergeant and Thatchers article (Sergeant and Thatcher, 1974) that the role of intelligence has been undervalued in many researches.

A lack of independence also characterises the musically appreciative in a number of ways. The most significant aspect of this is provided in the low scores on factor Q IV. (Subduedness v Independence.) Cattell

Cattell/

*The three elements have equal weight.

Cattell suggests that this is revealed in a failing to have perceptual independence, so that the low scores indicate 'field dependence' in the sense that Witkin (1954) uses the term. However Cattell further suggests that "general temperamental independence in the broadest sense" is an expression of this factor. The subdued or conforming nature is revealed in the 1st order factors E and G. Factor E indicates being submissive, obedient, accommodating and accepting authority, and factor G ('superego strength') indicates a control imposed from within that will also lead to the same kind of behaviours. The distinction between 'G' and 'E' should be made quite explicit since the link with the former suggests that the musical person is conscientious, positive and possibly persistent in the activities he undertakes.

Being socially group dependent (Q_2) and temperamentally preferring to sink ones individuality into group action (J) reveals fresh aspects of the conformity of those who appreciate music. But they are also indicative of sociability, which is further attested by being warmhearted, outgoing, co-operative and participating (A^+). "When persons of A^+ score come together, they more readily form active groups." (Cattell and Cattell, 1969) However "the A^+ individual is generally willing to 'go along' with expediency". (Cattell et al, 1970) The liking and involvement in social activities does not amount to extraversion. No matter whether extraversion is measured using the Junior Eysenck Personality Inventory or the 2nd order factor, 'Exvia' (QI) from the H.S.P.Q., it seems to be unrelated to musical appreciation. This may be because of lack of dynamism or thrust which has been discussed above: conformity implies being led rather than taking the lead. On factors F ('Surgent', enthusiastic, happy-go-lucky) and H (Adventurous, thick-skinned, socially bold), the musically appreciative seem little different from any others yet these factors are quite as important for 'exvia' as factor A. On factor D, for which our results are undoubtedly fairly inconclusive, any slight tendency is for the musical to be phlegmatic and undemonstrative rather than excitable and over-active, a tendency more indicative of introversion than of extraversion.

One further characteristic which correlates with musical appreciation is of real importance. This is a tendency to make affective, emotional responses. Factor I ('Presmia') is the most important single factor here and it reveals an emotional sensitivity. The emotionality possibly possibly/

possibly revealed in factor C is also quite consistent with our interpretation. Related to these 1st order factors, but based on several other factors as well, is the 2nd order factor Q III (Pathemia v Cortertia). At the appropriate pole, (musical) "individuals show a tendency to feel rather than think".

Discussion

Of greatest interest in the results obtained is the remarkable similarity of the personality correlates for many of the music appreciation variables being studied. It would be disingenuous to expect the personality correlates (and the implied personality profiles) to show considerable variations according to the aspect of music appreciation being studied. While the factors that emerged from the factor analysis may be orthogonal, the variables employed in the search for personality correlates are not independent. Furthermore, it seems unlikely, on any kind of grounds, that different aspects of musicality would not derive from some common personality traits. Nonetheless, the level of consistency over the variables associated in some way or another, with serious music is unexpected but of real significance. The variations which do exist (such as the variations in the magnitude and significance of the correlations with factor B) are less important than the similarities.

The relative uniformity of the personality correlates of different aspects of musical appreciation is most welcome because it helps to provide an elegant conceptual framework for an area which lacked any integrated framework. In Chapters 8 and 9 it was necessary to recognise the multiplicity of different musical behaviours or attitudes which go under the name 'music appreciation'. To rationalise the situation we proposed that music appreciation be considered as a disjunctive concept so that genuinely different activities could still be described, in a general way, as revealing music appreciation. In effect this was to suggest that the various musical activities that are covered by the blanket term 'music appreciation' should be considered as the evidence for musical appreciation but not the same as it. While this conceptualisation was possibly an advance on

on/

on previous thinking on the subject, there remained the question as to what it was that lay behind musically appreciative activities.

The present findings suggest that there is a musically appreciative personality and that those who have this may reveal it by engaging in any one of a considerable number of activities or by showing any one of a number of musical skills. That the attitudes, activities, or skills of the appreciative are uncorrelated is immaterial because the integrating aspect is the common personality structure of these musically appreciative people. It is recognised that the present suggestion has no more than the status of a hypothesis. To substantiate it one would ideally select people with the personality characteristics that have been shown to typify the musically appreciative and assess whether, in any sense, they are more musical than those who lack the crucial characteristics. However, before this is feasible it is important to discover what personality variations exist among those who could be labelled musically appreciative.

One attack on this problem is to discover what are the differences between the personality correlates of the different musical variables and this is the next topic discussed. Of especial importance for this is a consideration of the variables so far deliberately ignored, i.e. those that are not necessarily associated with serious music. These further analyses are the subject of the next chapter.

CHAPTER 11

THE PERSONALITY CORRELATES OF MUSICALLY APPRECIATIVE SCHOOL PUPILS

II VARIATIONS ON THE BASIC THEME

The Scope of the Chapter

In Chapter 10 the basic personality correlates of music appreciation were outlined. The function of this chapter is to bring into sharper focus these correlates and this is done in several ways. First is by a closer consideration of the results presented in the last chapter since the personality factors of significance are found to be of greater or lesser importance depending on the aspect of music appreciation being studied. Second is by making use of the full results, whereas in Chapter 10 music appreciation variables not associated with classical or serious music were ignored. Third is by finding the extent to which family background is an influence on music appreciation and relating this to what has been discovered about the role of personality factors on music appreciation.

Intelligence and Different Aspects of Music Appreciation

Table 10 - 7 (page 193) revealed the very considerable importance of intelligence (Factor B) in relation to ability on music tests. The music variables can be grouped together into those dealing with test ability, with performing skills or interests, and with musical tastes. When the correlation coefficients with Factor B of the several variables in each group are averaged, and when these averages are compared, it can be seen that intelligence does not share the same relationship with the different

different/

different groups of variables. (The appropriate figures are tabulated in Table 11 - 1.)

Variables whose correlation coefficients with Factor B are averaged	Mean r with Factor B
Total scores on the 4 music tests	.31
Ratings on taste for orchestral, operatic and chamber music	.25
4 Variables associated with playing an instrument and with choir and orchestra membership (see text)	.19
The 6 "taste" variables not associated with classical music	.05

TABLE 11 - 1 CORRELATION COEFFICIENTS BETWEEN INTELLIGENCE AND VARIOUS ASPECTS OF MUSIC APPRECIATION

The first conclusion that must be drawn is that intelligence is not equally related to all aspects of music appreciation. The negligible correlation coefficients with (say) taste for brass band music or taste for latin-american music cannot be ignored if these are legitimate as aspects of music appreciation, and we have argued they are. Intelligence seems to be considerably more closely related to classical styles of music than to other styles. Even within the classical range there may well be a valid distinction between listening and performing. Ability to do music tests and taste for classical music are concerned with listening and have higher correlation coefficients with intelligence than the variables concerned with performance. The 4 variables used for the average in the table are:

(i) being a member of a school choir (.13)

(ii) number of years tuition on an instrument (.21)

(iii) number of years as a member of an orchestra (.19)

(iv) selfassessment of instrumental ability and membership of a non-school musical group (.22).

These/

These were chosen to be wide ranging in dealing with performing and to give high correlations (e.g. the correlation coefficient for studying an instrument is .09 - and for piano alone .10. The correlation coefficient for the number of years spent studying an instrument, .21, is much higher.)

It is rather ironic that Wing's test, which claims to predict performing ability has the highest correlations with intelligence whereas the tests more concerned with listening, for its own sake, have lower correlations. In so far as Wing's test is used as an aptitude test, it may reflect analytical thinking and intelligence more than it should and the (relatively) close link with intelligence may be something of a disadvantage. However, where Wing's test is used as an attainment test to measure pupils' present musical abilities, the close relationship with intelligence is immaterial.

Personality in Relation to Musical Tastes

In considering the importance of 'intelligence' as a personality correlate the distinction has already been made between taste for classical/serious music and taste for other kinds of music. A particular comparison that has a special bearing on this topic is between the personalities of those with a taste for 'pop' music and those whose taste is for classical music. This is of interest since it has been shown in Factor IX that the former taste is, to some extent, the polar opposite of the latter. Nonetheless, there is a separate factor (Factor VIII) in which taste for 'pop' music is important, and it would be wrong to consider 'pop' simply as the antithesis of classical music. Another reason for denying that 'pop' is the antithesis of classical music is the complication that arises when interpreting the negative correlation between taste for 'pop' music and taste for classical music because 'pop' music is more popular than classical music. A consequence is that those who like classical music more than the average person and like 'pop' music less than the average person (which is what would be required for a negative correlation) may still like 'pop' just as much as classical music.

Possibly the most significant difference between the 'pop' addict and the classical music lover is in their levels of extraversion. There is a significant negative correlation between extraversion (measured on the J.E.P.I.) and taste for orchestral music ($r = -.15$). There are significant positive correlations between extraversion and taste for 'pop' music ($r = +.27$) and attendance at folk/'pop' concerts ($r = +.26$). (See also Table 11 - 2.)

	N	Orchestral Music Mean Score	N	'Pop' Music Mean Score
Like very much	48	15.19	126	17.49
Like a bit	60		40	15.65
Unsure	22	16.96	1	
Dislike a bit	22		8	13.89
Dislike strongly	31	18.07	10	

TABLE 11 - 2 MEAN EXTRAVERSION SCORES (J.E.P.I.) FOR DIFFERENT DEGREES OF LIKING FOR 'POP' MUSIC AND LIKING FOR ORCHESTRAL MUSIC

The H.S.P.Q. personality factors also show the same results. The 2nd order factor, Exvia, correlates positively with taste for 'pop' and with attendance at 'pop'/folk concerts, it correlates negatively with taste for orchestral music. This shows the influence of Factors E and J where those who like 'pop' are 'dominant, zestful, liking group action' but those with classical tastes are submissive and reflective. It is pertinent to note that it is only with the attitudes concerning listening, which are a part of taste for classical music, that lead to higher scores on Factor J ("circumspect individualism" and "being reflective"). With the music tests, high ability is correlated with low scores. Still related in the most general way to extraversion is the positive correlation between taste for orchestral music and 'self sufficiency' (Q_2). Again this seems to characterise the listener. There is no such correlation with measures of musical ability or with variables associated with musical performance. The person with a taste for 'pop' music tends to be group dependent and a "sound follower" who yields to social pressures: the negative correlations are significant.

This last finding should presumably not seem unusual since the popular music industry relies very heavily upon the social conformity of its (mainly teenage) market to survive and profit. The lower super ego strength (G) of those liking 'pop', as compared to those liking orchestral music parallels this and suggests that those favouring 'pop' may lack their own 'inbuilt' personal musical standards. Possibly similar to this are the results concerning Field Dependence (QIII).

One further distinction between the classical music lover and the 'pop' lover is in their emotionality or emotional sensitivity. On both Factor C and Factor I, the emotionally less stable and more sensitive, are those preferring classical (orchestral) music.

The personality correlates of liking for orchestral music and liking for 'pop' music reveal quite neatly the fact that these are in some respects polar opposites. There remains the question of the extent to which taste for folk (and Scottish) music and taste for light music have the same personality correlates as have been described for the basic 'appreciative' personality - which approximates to the correlates for 'liking for orchestral music' - or to what extent they have their own unique personality correlates.

To deal with this question, the four characteristics which distinguish those with tastes for classical music from those with taste for 'pop' can be considered first. These are:

1. Level of intelligence
2. Degree of extraversion
3. Extent to which one is socially pliable
4. Degree of emotional sensitivity.

In Table 11-3, the 'correlation coefficients' quoted are, with the exception of those for 'pop' music, the average of the several coefficients for the relevant variables. Taste for classical music is based on 'taste for orchestral music', 'taste for opera', and 'taste for chamber music'. Taste for folk and Scottish music is based on the two variables indicated in the title. Taste for light music is based on 'taste for music from shows', 'taste for Latin-American music' and 'taste for jazz'. The

The/

The groupings used here are those that emerged in the factor analysis of the taste variables.

	Intelligence	Extraversion		Self-sufficiency (v Social Pliability)		Emotional Sensitivity
	Factor B^+	Extra-version (JEPI)	Exvia (QI) (ESPQ)	G^-	Q_2^-	I^+
Taste for classical music	+.25	-.14	-.03	+.18	+.02	+.26
Taste for folk and scottish music	+.11	+.02	.00	+.11	-.07	+.10
Taste for light music	+.02	+.20	+.16	+.06	-.13	+.07
Taste for 'pop'	-.04	+.27	+.10	-.03	-.29	-.14

TABLE 11 - 3 CORRELATION COEFFICIENTS OF MUSICAL TASTES WITH SOME PERSONALITY VARIABLES

It is evident that taste for folk music and taste for light music are associated with personality types intermediate between those that characterise a taste for classical music and a taste for 'pop' music. Because 'folk' and 'light' music are intermediate tastes it is only to be expected that the correlation coefficients tend not to be so significant. Only with the figures for 'Exvia' is the pattern distorted, and all the taste variables provide similar correlation coefficients. However the regularity with which the average correlations increase or decrease* provides sound evidence that the personality variables of interest are the same for all all/

*This regularity is also seen if the individual taste variables are listed in the sequence: taste for orchestral, operatic, chamber, Scots, folk, show, latin-american, jazz, or 'pop' music. There are, however, minor fluctuations.

all musical tastes and that the relationships between personality and music tastes are surprisingly simple and regular.

Let us exemplify what is meant by this last statement. The person with a taste for 'pop' music tends to be (on average) extravert, socially pliable, emotionally insensitive and not necessarily intelligent. If factors of taste are independent (and we are certain ours are) then, in theory, there seems to be no reason why some other taste might not be associated with being (say) extravert, socially pliable, but emotionally sensitive and intelligent. In fact, the kind of independence in the personality factors that would be required for this seems not to be typical of the personality correlates of musical taste.

It was suggested, in Chapter 10, that although music appreciation may be revealed in any of a great number of different musical activities, there is a more-or-less unique personality structure which typifies the musically appreciative. From the closer consideration of the personality correlates of taste for various styles of music, it has been shown that the structure of personality appropriate to each factor of musical taste differs. However, we believe this does not invalidate the suggestion since for the separate factors of musical taste there are not totally different personality profiles, but essentially the same profile shown with greater or lesser intensity or clarity.

The Personality of Performers

		Whether an Orchestral Player		Whether a Choir Member		Whether a Self taught Instru-mentalist	
		Yes	No	Yes	No	Yes	No
Factor	C	5.21	5.62	5.39	5.70	6.17	5.36
	I	6.71	5.55	5.94	5.52	5.36	5.88
	Q_{III}	5.08	5.65	5.18	5.79	5.69	5.51
	H	6.04	5.42	5.59	5.43	6.23	5.26
	Q_3	4.54	5.30	5.19	5.20	5.53	5.06
		N = 28		N = 91		N = 47	

TABLE 11 - 4 MEAN SCORES FOR PERFORMERS AND NON-PERFORMERS ON THE H.S.P.Q. FACTORS THAT DISTINGUISH THEM

The typical personality profile of those who perform is essentially the same as the basic personality profile already described. This can be seen in the pattern of results displayed in Table 10 - 8 (p.194). Some aspects of personality demand further attention since they reflect differences between different groups of performers.

Compared to the majority, those who have taught themselves an instrument tend to be emotionally more stable and possibly fairly persistent in their studying. Their relatively high scores on Factor Q_3 (controlled, self disciplined) tends to confirm this interpretation. Orchestral players and singers tend to be less stable and less emotionally controlled than normal. In previous analyses, Factors C and I have been considered jointly since both are related to emotional sensitivity. On both factors orchestral players and singers tend to be more emotionally sensitive than others (C^-, I^+) whereas self taught instrumentalists are less so. The marked difference on 'I' further suggests that the self taught player is less sensitive and may have a skill or interest that outstrips his musicianship: he may have more delight in playing than aspirations to play with sensitive musicality.

On one further factor, Factor H (Socially bold, "thick skinned"), self taught musicians differ quite significantly from others and this may reflect a courage to "go it alone" in studying an instrument. With other instrumentalists there is a similar trend, but it is much less marked.

A more detailed analysis of the relationship between performing on a musical instrument and personality could be made by taking account of which instrument a person plays, whether piano or a stringed instrument or a wood wind instrument, etc. The results for such comparisons are to be found in Appendix 24. Unfortunately, no significant findings emerge. The principal reason for this is that the number of people falling into any one group is very small (e.g. there is personality data on only 10 brass players). Although there are no significant distinctions evident between pianists, wood wind players and brass players (say), this is not to deny that real differences may exist. However, to be useful, data on much greater numbers would be required.

Home Background and Music Appreciation

Home background and test ability:

	Total for Wing Tests	Total for Indiana-Oregon	Total for Martin Test
Number of instruments at home	.59	.39	.32
Whether parents play an instrument	.50	.34	.29
Whether siblings play an instrument	.38	.27	.14
Amount of family music making	.40	.37	.22

TABLE 11 - 5 CORRELATION COEFFICIENTS BETWEEN HOME BACKGROUND VARIABLES AND MUSICAL ABILITY AS MEASURED BY THE MUSIC TESTS

From Table 11 - 5 it is very evident that the home background is of very considerable importance. With the exception of the two lowest correlation coefficients quoted all are statistically significant at the .01 or .001 level. The magnitude of these figures is much higher than the magnitude of the correlation coefficients between personality variables and test scores, which suggests that ones basic personality is less important than how musical an environment one grows up in. It is interesting to note that the highest correlations are with the number of instruments in the home, i.e. the equipment available, and not with the other variables which are concerned with active music making.

One would expect that the use that is made of instruments would be a more valuable index since a causal relationship could be hypothesised between music making in the home and the musical ability of the subjects tested, but there is no (simple) causal relationship between possession of musical instruments and musical ability.

'Ability' tests which demand analytic skills yield higher correlation coefficients than 'appreciation' tests which require judgements about the artistic merit of different bits of music. This is true no matter whether a comparison of whole tests is made (e.g. Wing v Martin) or a comparison is made within a single test instrument (e.g. Wing's 'Ability' tests (1 - 3) v Wing's 'Appreciation' tests (4 - 7)). Possibly parental concern for technical accuracy is greater than an interest in how musical a performance is.

Home background and performing skills:

	Whether piano is studied	Whether any other instrument is studied	Whether an instrument is self-taught	Years as a member of school orchestra	Membership of school choir	Membership of non-school music group
Number of instruments at home	.43	.39	.27	.49	.34	.38
Whether parents play an instrument	.34	.23	.24	.42	.36	.36
Whether siblings play an instrument	.34	.38	.23	.42	.40	.24
Amount of family music making	.26	.12	.25	.27	.30	.26

TABLE 11 - 6 CORRELATION COEFFICIENTS BETWEEN HOME BACKGROUND VARIABLES AND VARIABLES RELATING TO PERFORMING MUSICALLY

In various aspects of performing, home influences are again quite considerable (see Table 11 - 6). The fact that there is a weaker relationship with family music making than with number of instruments at home is, in this context, particularly surprising. Even so, the

the/

the correlation coefficients are quite high. The lowest values (possibly not surprisingly) are for having taught oneself an instrument, but even here all are statistically significant at better than the .01 level.

Home background and musical taste: In Table 11 - 7 to consider home influences on the subjects' musical tastes, only the two 'home' variables, 'number of instruments at home' and 'whether either or both parents play an instrument' are reported. But the correlation coefficients for the other two 'home' variables do not differ from the latter to any marked extent.

	Number of instruments at home*	Whether parents play an instrument
Attendance at concerts of serious music	.38***	.40***
Taste for orchestral music	.36***	.37***
chamber music	.38***	.37***
scottish music	.21**	.17 N.S.
folk music	.16*	.09 N.S.
music from shows	.21**	.19*
latin-american music	.17*	.19*
jazz music	.10 N.S.	.17 N.S.
'pop' music	-.12 N.S.	-.23**
Attendance at 'pop' concerts	-.01 N.S.	.06 N.S.

TABLE 11 - 7 CORRELATION COEFFICIENTS BETWEEN HOME BACKGROUND VARIABLES AND THE VARIABLES CONCERNING TASTE FOR DIFFERENT KINDS OF MUSIC

Once again home influence reveals itself, but only with any great significance for those variables associated with an interest in classical music. 'Pop' is once more seen as the opposite of classical music and is the only style of music for which there are negative correlations with the musicalness of the home background.

*The statistical significance of the correlation coefficients is indicated by the asterisks:

*** significant at the .001 level
** significant at the .01 level
* significant at the .05 level

One might note the progressively smaller correlation coefficients for 'number of instruments at home' as one follows the progression from classical music, through 'folk' music and light music to 'pop' since this parallels the findings concerning the personality variables (see p.207). More interesting are the non-significant correlation coefficients* between parents playing an instrument and liking for Scottish and folk music. The most likely explanation of this is that when parents do play, they are probably not playing Scottish music or folk music. These styles are less associated with piano playing than any of the other styles, yet the piano is the favoured instrument of parents.

The Relative Importance of Home and Personality Variables

Thus far, in Chapters 10 and 11, we have considered correlational data to help identify the basic personality structure of the musically appreciative and we have noted those characteristics which distinguish one group from another, e.g. performers from non-performers or those liking 'pop' from those liking classical styles. These approaches, valuable as they are for identifying the more important personality variables, do not enable one to assess the true level of importance of these variables.

In an attempt to assess the importance in music appreciation of personality variables, and also of home background variables, a number of stepwise multiple regression analyses were carried out. These provide two closely related statistics. The first is the multiple correlation coefficient between the personality/home background variables and the music appreciation variable under scrutiny. In the analyses it is possible to see to what extent the multiple correlation coefficient increases as further variables are included. The second statistic is the proportion of the variance accounted for by (each of) the personality/home background variables.

---

*The non-significance of $r = .17$ and the significance of $r = .16$ (in the 'folk' and 'scottish' variables in Table 11 - 7) is due to rounding errors and to the correlations being based on slightly different numbers of responses, due to faulty form filling by a handful of our subjects!

Regression analysis of performance on Wing's 'Ability' Tests: Let us consider musical ability as measured by the Wing 'Ability' tests (i.e. Tests 1 - 3 of the Wing battery) as the independent variable. Of the many personality variables, the one correlating highest with musical ability was Factor B on the H.S.P.Q., i.e. intelligence : r = .44. Where the 16 most useful personality variables were used in a multiple regression, it was found that the multiple correlation coefficient rose to .54. While the improvement from .44 to .54 is a real one, it is not very large. The multiple correlation coefficient of .54 indicates that only 29% of the variance is accounted for. Each of the first 5 personality variables used in this regression accounted for more than 1% of the variance. None of the other variables accounted for as much as 1%. (Full details are tabulated in Appendix 25) The 5 variables yield a multiple correlation coefficient of .50. Obviously the 12 remaining factors add very little.

If the home background variables are considered, the single variable, the number of instruments at home, correlates .58 with music ability. Consequently, if one is trying to predict who will have musical ability, it is more efficient, as well as much simpler, to note the number of instruments at home than to make use of the whole of the individual's personality profile. This reveals very forcibly the relative unimportance of the personality correlates of music ability. It is most disappointing that personality correlates are not more important. More particularly, it is disappointing that as personality variables are added into the regression, none of them, after the first, account for as much as a further 2% of the variance.

By including the personality variables and the home background variables in the regression, the multiple correlation can be raised to .71 with 50% of the variance being accounted for.

That home background and the kind of personalities found in it are not independent is more clearly evident in our regression analyses than in the more basic correlational data. Where the influence of the personality variables is considered first and the home background variables are added in later, the former variables account for 29% of the variance and the latter the remaining 21%. However, 35% of the variance is accounted for by home background variables, and only the further 15% by personality if the regression analysis does not force the personality variables to be treated first. Obviously, no more than 15% of the variance is attributable to

to/

to personality alone, and 21% to home background alone. The remaining 14% can be attributed to either, as it is common to both and represents the overlap, or correlation, that exists between personality and home variables.

There are two conclusions to be drawn from this. First, personality variables may be thought of as less important than was originally indicated. Second, those brought up in families where the background is a musical one, may tend to have a 'musical personality'. However, we should note that the strength of this relationship is relatively weak; it is no greater than the strength of the relationship between personality and music ability.

For the most informative approach, the sequence in which the variables are entered in the analysis is not predetermined or constrained in any way at any stage in the analysis. This allows maximum levels of multiple correlation with a minimum number of variables, i.e. the most efficient entry of variables. Such analysis reveals the most important variables associated with musical ability and now to combine them in the most useful way for predicting musical ability. In Table 11 - 8 the first 5 of the 22 steps of the regression analysis are presented.

	Multiple r	% of variance accounted for
Number of instruments at home	.582	33.83%
Factor B (Intelligence)	.653	8.78%
Factor I (Premsia, Tendermindedness)	.660	0.94%
Extent of family music making	.666	0.86%
Factor QIV (Field Dependence)	.672	0.81%
The remaining variables*	.707	4.72%
		49.94%

*The full table is presented in Appendix 2 5.

Dependent variable = Performance on Wing's Ability Tests

TABLE 11 - 8 MULTIPLE REGRESSION ANALYSIS ON 'PERFORMANCE ON WING'S ABILITY TESTS

It is clear that intelligence is the personality variable of greatest importance. Of the non-cognitive variables, premsia is most important but its contribution is still quite small. This agrees with the findings from the study of the correlation coefficients. But there the importance (or lack of importance) of the personality factors was not clear. (It should be noted that because the personality factors are correlated, a variable such such/

such as Premsia, Factor I, will not necessarily be of importance in the regression analysis. This can be seen in a comparison of the two analyses reported in full in Appendix 25. (We return to this point later.)

In commenting upon Table 11 - 8, we have noted the slight contribution of the personality variables. However, it should be noted that a correlation coefficient of .71 is normally considered to be quite reasonable. Certainly there are few music studies which report such a figure for the correlation between a musical variable and non-musical variables. Even the multiple correlation of .54 between musical ability and the personality factors cannot be ignored or treated as unimportant.

In view of the distinctions made in earlier chapters between different aspects of musical appreciation, further regression analyses were carried out.

Regression Analysis of Membership of School Orchestras

Since performing in an orchestra has been shown in the correlation data to attract a different type of person from those who merely listen to music, the sequence in which the variables entered the analysis was not the same as with the analysis for music ability. However, if the details are ignored (for the time being) and only the basic pattern is considered, the findings are not dissimilar.

By allowing only the 19 personality variables to be used in the regression, a multiple correlation coefficient with membership of a school orchestra is .44. (The highest simple correlation coefficient between orchestra membership and any of the personality variables is .24) (See Appendix 26.)

The home background variable, 'whether siblings play an instrument', correlates .46 with orchestra membership, and the variable 'number of instruments at home' correlates .40. The data in Table 11 - 6, which deals with the length of time spent as an orchestra member, shows the number of instruments in the home to be the more significant of these two variables with a correlation coefficient of .49. It is quite clear that a single home background variable can be a more effective predictor than a complete personality profile. This is true even though that variable does not appear to reveal the cause of any musical skills or explain their extent.

The correlation coefficient between orchestra membership and the Wing's 'Ability' Tests is .47. When both personality and home background variables are used in an analysis, the multiple correlation coefficient is .57. The later addition of the Wing's Test only pushes this figure up to .61.

That the addition of the Wing Test does not push the correlation coefficient up further is entirely predictable, since the multiple correlation between the test and the home and personality variable has been shown to be .71.

It is interesting that membership of a school orchestra can be less well predicted from the kind of evidence we have available than music ability as tested. This suggests that social factors, possibly such as the encouragement provided by parents or teachers or the attitudes of ones peers, may have a more marked effect on playing in an orchestra than on being good at music tests. In so far as this is true, it vindicates the policy we have adopted of considering more than just test variables in the attempt to understand or predict what makes one musical (and in this particular instance a member of a school orchestra). However, since the multiple correlation coefficient is no more than .61, this does suggest that there is a need to broaden the investigation further. The study of personality and home background should be supplemented by a study of further broad areas, such as the attitudes and aspirations of musicians or non-musicians.

Table 11 - 9 reveals the joint influence of the 5 most important variables when no constraints are placed upon the sequence for the acceptance of variables into the regression.

	Multiple r	% of variance accounted for
Performance on Wing's Ability Tests	.468	21.90%
Whether siblings play an instrument	.523	5.82%
Factor Q3 (Uncontrolled, Careless)	.555	3.08%
Neuroticism (v Stability) (J.E.P.I.)	.562	0.82%
Factor QIII (Cortical Alertness)	.576	1.55%
The remaining variables*	.612	4.25%
		37.42%

*The full table is presented in Appendix 26.

Dependent Variable = Membership of School Orchestra

TABLE 11 - 9 MULTIPLE REGRESSION ANALYSIS ON 'MEMBERSHIP OF A SCHOOL ORCHESTRA'

It is most interesting to note that Wing's Tests do correlate with orchestra membership, since they are tests of aptitude for performing skills, but that prediction of orchestra membership is considerably better if information about personality and home background are also taken into account.

A variety of further analyses were carried out. Table 11 - 10 presents the figures relating to 'teaching oneself an instrument'.

	Multiple r	% of variance accounted for
Number of instruments at home	.274	7.55%
Factor H (Socially bold)	.324	2.98%
Extent of family music making	.341	1.13%
Neuroticism (v Stability) (J.E.P.I.)	.359	1.26%
Factor C (Emotional Stability)	.378	1.39%
The remaining variables*	.405	2.10%
		16.40%

*The full table is presented in Appendix 27.

Dependent Variable = Teaching oneself an instrument.

TABLE 11 - 10 MULTIPLE REGRESSION ANALYSIS ON HAVING TAUGHT ONESELF AN INSTRUMENT

Again, very few variables have any real importance and again the home variables are the more important. Of greatest interest here is the difficulty that there is in predicting who might study an instrument without formal tuition. The multiple correlation, based on 22 variables, is very low (.41). This again suggests that an understanding of what makes a person study an instrument by himself is not to be found in an analysis of home background or personality.

The high position of Factor H, being socially bold, and able to disregard the demands of others, is of real interest as revealing a personality trait desirable for those willing to 'go it alone' in learning an instrument.

Further regression analyses were carried out, and in them all, the same kind of results were found, i.e. a small number of variables led to the most efficient prediction (the highest multiple correlation coefficient) and home background variables were more important than personality variables. Often, though not always, the 'best' home variable gave a correlation coefficient higher than the multiple correlation coefficient from the personality data.

Dependent Variable	Multiple r (using all personality and home variables)	Number of variables accounting for 1% of variance	Correlation coefficient from best single predictor	
			Home Variables	Personality Variables
Performance on Wing's Ability Tests	.71	2	.58	.44
Whether piano is studied	.52	3	.43	.21
Membership of school orchestra	.57*	5	.46	.24
Whether an instrument is self-taught	.41	5	.28	.17
Membership of school choir	.52	4	.40	.16
Membership of musical group outwith school	.54	6	.38	.18
Attendance at concerts of serious music	.65	6	.40	.29
Attendance at concerts of pop/folk music	.45	5	.15	.29
Taste for orchestral music	.63	7	.37	.34

TABLE 11 - 11 A SUMMARY OF THE STATISTICS FROM SEVERAL MULTIPLE REGRESSION ANALYSES

Some limited data from these further analyses is presented in Table 11 - 11.

One further point ought to be made. It is that the multiple correlation coefficients are quite considerably higher than the simple correlation coefficients quoted in most studies, and in this one. The median multiple r in Table 11 - 11 is about .54. This demonstrates that personality and home background variables are relevant for understanding various aspects of music appreciation. While this is an achievement, what is most needed is knowledge of <u>which</u> personality or home variable is of greatest value.

*This is obtained when score on the music tests is <u>not</u> added in to the regression.

There is a difficulty in attempting to specify which personality variables are of greatest value because they are not independent and uncorrelated. Let us consider the two regressions for Performance on Wing's Ability Tests (Appendix 25. , See also p.214). Where the personality variable must be entered into the regression before the home background variables Factor QIII (Cortertia) i.e. Tough Poise v Tender-minded emotionality is the second personality variable after intelligence. Factor I (Presmia) is the 13th variable used. On the other hand, in the regression analysis in which personality variables are not given precedence over home variables, Factor I (Presmia) is the second personality variable after intelligence (though 'number of instruments at home' precedes both) and Factor QIII is the 16th variable entered into the regression.

Since both regressions (necessarily) produce the same multiple correlation coefficient, they are equally valid. Indeed, as with factor analysis, there is no correct solution.

The problem (in so far as there is one) arises from the use of too large a number of variables which are not independent. However, evidence from the correlation data and consideration of the nature of the personality factors enables the areas of overlap to be recognised. Thus in Chapter 10, the relationships between the factors was used in the attempt to provide a relatively succinct account of the basic personality profile of the musically appreciative. For example (pp.199 and 200) it was suggested one characteristic of real importance was the "tendency to make affective emotional responses" and to support this, the correlations of Factor I, Factor QIII and Factor C were considered together.

In view of this, it is not really necessary to identify which particular personality or home variables are of greatest importance. The real task is to identify which kinds of variables are important. In the example used (Performance on Wing's Ability Tests) of the personality variables Intelligence, Emotional Sensitivity, Field Dependence and Extra-version are all relatively high in importance. However, the particular variables representing these characteristics are not the same in the different analyses.

In this chapter, variations from the basic personality profile of the musically appreciative have been described and discussed, the importance of the home background has been revealed and the relative importance, or lack of importance, of these evaluated. One point that is very clear is that the understanding and explanation of musical appreciation needs to take into account factors not considered in this study. As a corollary of this, one must recognise the complexities of the determinants of music appreciation: there is no simple way of knowing who will be musical and who will not, just as there is no simple way of knowing in what way musical abilities or interests will reveal themselves. Confirmation of this is to be found in Chapters 13 and 14. In these are considered a narrower range of musical interests and abilities since the personalities of musicians and music students is the subject of analysis and discussion.

CHAPTER 12

THE SEMANTIC DIFFERENTIAL APPLIED TO MUSIC AND THE PERSONALITY CORRELATES OF THE SEMANTIC DIFFERENTIAL RATINGS

Findings from the Semantic Differential Alone

The two previous chapters have been concerned with the personality correlates of the school pupils test data and questionnaire data. However, their semantic differential ratings of different pieces of music have not yet been fully analysed. Yet these must be considered important: the semantic differential technique was developed because of the need for a convenient method of obtaining objective measures of 'evaluation' of various musical extracts. The validation of the developed technique, by means of factor analysis of the music ratings, gave evidence that this aim was realistic since the three classic semantic differential factors, i.e. 'evaluation', 'activity' and 'potency', emerged. On the basis of the factor analytic results separate measures of 'evaluation', 'activity' and 'potency' were produced by combining the ratings on the several rating scales which had high factor loadings on each of the factors. (Full details are in Appendix 28.) Consequently, for each of the school pupils there were the three measures for each musical extract, and also for the concept 'myself'.

In this chapter we shall consider both how the various pieces of music were rated by our school pupils and how the personality of these pupils affected these ratings.

Composition	Evaluation		Activity		Potency	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Trad jazz	28.1	8.28	20.1	2.00	13.0	3.03
Play	24.6	8.27	14.0	3.56	10.7	2.90
Bruch	29.2	7.93	6.4	2.95	10.1	3.38
Prokofiev	30.1	6.86	15.8	4.39	16.6	3.49
Vivaldi	27.6	8.63	14.6	4.24	8.2	2.90
Brahms	27.9	7.46	16.1	4.61	9.6	2.66
"Bridge over Troubled Water"	37.9	5.96	6.8	3.68	10.9	3.39
Bach	23.9	9.66	12.5	4.80	10.4	3.67
Bartok	19.6	8.99	10.3	4.49	16.7	2.97
Self	28.4	7.32	15.5	4.69	11.5	5.22

TABLE 12 - 1 MEAN SCORES ON THE 3 SEMANTIC DIFFERENTIAL DIMENSIONS OF THE PIECES OF MUSIC RATED

Table 12 - 1 presents a summary of the results. The ratings for 'evaluation' do vary quite considerably even although the majority of the music extracts are from serious, or classical, works. The order of the works suggests that 'evaluation' is essentially the same as 'popularity', and the song 'Bridge over Troubled Water' received very high ratings. The atonal piece of music by Bartok was quite positively disliked. (Scores of less than 28 indicate being disliked and are considered 'bad' rather than 'good'.) The other music received less markedly varying ratings and for several the mean evaluation is rather non-commital, suggesting that some give positive, and others negative, evaluations.

The sequence suggests that with serious music the more romantic styles (e.g., Bruch violin concerto) are preferred by school pupils to the classical styles (e.g. Bach) - a fact which seems intuitively right. This is also in accord with Payne's views, since the pleasure from an intellectual understanding of the music (the aesthetic emotion) tends to be associated with classical, rather than romantic, styles of music and this kind of pleasure must be less frequently found than a pleasure derived directly from the music itself.

The scores for 'activity' provide no great surprises. Despite this, it is worth considering what are the aspects of music that make it seem active. Whilst 'tempo' is obviously one, it is not alone: the most active music, the 'traditional jazz' version of 'Whistling Rufus' by Chris Barber's jazz band has a relatively slow tempo. Rhythmic complexities, such as syncopation (a feature of the part of the Brahm's piano concerto used) and the use of relatively large intervals in the melodic line may possibly also be interpreted as 'activity'.

The ranking on 'potency' is fairly predictable and there is a fairly good consensus: the standard deviations are fairly low. The comparison of the 'activity' and 'potency' results is instructive. On both, the possible range is the same (from 3 to 21 with a score of 12 being a neutral, or undecided, score). The differences between musical extracts is much greater on 'activity', which suggests one of two hypotheses. Either the selection of items is biased so that all the music is of similar potency, or variations in activity are more readily perceived.

Semantic Differential 'Evaluations' of Music and Taste for Different Styles

There is no other data which resembles the data on 'activity' and 'potency'. However, the 'taste data' does parallel the information about 'evaluation' based on ratings, and it is right to digress briefly to compare these findings.

	Mean rating on 5 point scale*
Taste for pop music	4.5
Taste for folk music	4.2
Taste for music from shows	3.9
Taste for orchestral music	3.7
Taste for jazz	3.2
Taste for brass band music	3.2
Taste for Scottish music	2.9
Taste for Latin-American music	2.9
Taste for chamber music	2.8
Taste for opera	2.6

*Numerical values 1 to 5 were used, with 5 indicating the highest degree of liking

TABLE 12 - 2 MEAN SCORES FOR POPULARITY OF DIFFERENT STYLES OF MUSIC

A preference for 'pop' music over other styles is seen in Table 12 - 2. This nicely parallels the semantic differential finding. Similarly the position of jazz below orchestral music is not inappropriate. The semantic differential shows 'Whistling Rufus' to be less liked than two orchestral extracts, and this piece of 'trad jazz' is reasonably 'pop'.

It is interesting that the various styles which have been shown to be related in the factor analysis do not receive similar ratings. For example, orchestral music is much more popular than opera or chamber music and folk music is much more popular than Scottish music. There is, of course, no inconsistency in this. However, it does highlight the need to recognise that different works, or kinds of works, from the same broad category can differ very greatly in popularity. This point has already been made evident in the semantic differential results (Table 12 - 1). It is also clear when measures of evaluation for the 9 music extracts are intercorrelated. The correlation coefficients are surprisingly low: only 5 of the 36 exceed .30 and none exceed .5.

In view of this the correlation matrix was subjected to a factor analysis*. Because of the limited input, a factor structure like that obtained from the taste variables could not be expected.

Two separate analyses were carried out. The first simply made use of the 'evaluation' scores for each of the nine music extracts: this for convenience we shall call the "evaluation analysis". The second uses this same information, but also includes the questionnaire ratings regarding preference for different styles of music (the 'taste data').

Results of the first analysis (the 'evaluation' analysis):

	Factor I	Factor II	Factor III
Trad jazz	-.02	.07	.39
'Play Bach'	.05	.15	.61
Bruch	.55	.25	-.24
Prokofiev	.13	.26	.08
Vivaldi	.72	.29	-.04
Brahms	.60	.01	.22
"Bridge over Troubled Water"	-.14	-.42	-.20
Bach	.29	.69	-.39
Bartok	-.01	.39	.21

TABLE 12 - 3 FACTOR LOADINGS ON THE "EVALUATION ANALYSIS" OF THE SEMANTIC DIFFERENTIAL EVALUATION RATINGS

If there were a large range of different musical styles, then the factors would provide a description of the dimensions of musical preference or taste in much the same way as the questionnaire data has. However, in the present instance where there is not a wide range of styles, the factors are more likely to reveal what characteristics are taken into account in the evaluation of music.

Factor I indicates high evaluation for music that is not considered to be potent. The three pieces of music with the highest loadings are those with the lowest ratings on potency. The Spearman rank order correlation coefficient between the magnitude of the factor loadings and the 'potency' of the various musical extracts is - 0.80. Since the positive loadings of any size are all associated with pieces of music in the classical repertoire, and since it is the other pieces of music which prevent the correlation coefficient from being even closer to unity, one must conclude conclude/

*Principle Components with Varimax rotation

conclude that the relationship between lack of potency and high evaluation is specific to music within the classical tradition. It is interesting to conjecture that the music which is most 'potent' is the music which the listener finds most moving, and which stirs him emotionally the most. If this is so, then the factor just described reflects the fact that emotional music is not so highly evaluated as possibly more cerebral music. This seems to run counter to what was suggested earlier, "that, with serious music, the more romantic styles are preferred to the classical styles" (p.223). This was based on a consideration of the mean scores for the nine pieces of music, a relatively unsophisticated approach. We believe the findings are not contradictory, but that there is here contrast between evaluation as a measure of quality (or goodness or merit) and evaluation as a measure of popularity. If this is the case, this distinction should be evident in the factor analysis, and indeed it is.

The second factor contrasts, on the one hand, the Bach and the and on the other hand the pop song "Bridge over Troubled Water". There is an obvious link with the evaluation or popularity ratings of Table 12 - 1. None the less, the rank order correlation between the evaluation ratings and the factor loadings is less than .7. Inspection of the factor loadings suggests this factor reflects "how easy the music is to listen to": e.g. the 'Play Bach' could make good Musak although its evaluation rating, and probably, therefore, its popularity is low.

The third factor, which again is a bipolar factor, contrasts the Bach, the Bruch and the pop song with the Brahms, the 'trad jazz' and particularly the 'Play Bach'. The distinction is essentially between smooth flowing music and syncopated or jazzy music. Possibly the simplest description of this distinction is as a melody v rhythm factor of preference.

Before any further discussion of the nature of the factors, the results of the second factor analysis should be presented.

<u>The second factor analysis with the semantic differential evaluations</u>: This analysis extends the first through the addition of the 'taste variables'.

Table 12 - 4/

Factor	I	II	III	IV	V	VI
Evaluation of -						
Trad jazz	-.20	.35	.16	.05	.23	.29
Play Bach	-.07	.00	-.09	-.06	.85	.10
Bruch	.58	.08	.25	-.05	-.07	.11
Prokofiev	.45	.16	-.29	.12	.25	.09
Vivaldi	.49	.04	.47	-.23	.16	-.01
Brahms	.25	.02	.46	-.09	.25	.04
"Bridge over Troubled Water"	-.20	-.12	.00	.60	-.16	-.22
Bach	.65	-.05	.14	-.10	-.09	.14
Bartok	.10	-.02	-.02	-.03	.08	.71
Taste for -						
Orchestral music	.62	.15	.01	-.27	.24	-.31
Opera	.64	.22	.24	-.28	-.06	-.17
Chamber music	.68	.30	-.02	-.31	-.08	-.16
Brass music	.22	.10	.22	-.18	.24	-.24
Music from shows	.20	.60	.19	.13	-.01	-.38
Latin-American music	.18	.59	.19	.04	-.02	-.10
Scottish music	.07	.28	.56	-.03	-.14	-.12
Folk music	.05	.05	.61	.15	-.10	-.01
Pop	-.23	.16	.04	.79	.05	.15
Jazz music	-.01	.60	-.04	-.09	.05	.12

TABLE 12 - 4 FACTOR LOADINGS ON THE SECOND FACTOR ANALYSIS: (EVALUATION OF DIFFERENT MUSICAL EXTRACTS AND PREFERENCE FOR DIFFERENT STYLES OF MUSIC)

Identification of the factors: Factor I of this larger factor analysis is the 'Taste for serious music' factor which emerged in the original analysis of the questionnaire data (Chapter 8). However, there are high loadings for four 'evaluation variables' derived from the semantic differential, and these are the variables which defined the second factor of the 'evaluation analysis' - a factor which reflected the complexity or richness in music that made it relatively difficult to listen to.

Factor II is the light music factor from the original analysis (Chapter 8) and the loading of evaluation of the piece of trad jazz is quite consistent with this. Unlike Factor I which overlaps with a factor from the 'evaluation analysis', there is no overlap between Factor II and any of the 'evaluation analysis' factors.

Factor III is the 'Folk music' factor from the original analysis. It can be seen to overlap with Factor I of the 'evaluation analysis', an interesting finding because it reveals that those liking Scottish music or Folk music enjoy a style of music which is peaceful rather than potent. This may also indicate a parallel between the 'political' attitudes of folk singers (and the attitudes embodied in folk songs) and the style of folk music. This is the case since such music is 'non-potent' and the political attitudes of folk singers are often pacifist, and the songs are concerned with the plight, and the rights, of the oppressed.

Factor IV is a 'pop' music factor. In the original analysis it was pointed out that a taste for 'pop' was not merely the polar opposite of a taste for serious music, although this was one aspect of their relationship. In this analysis 'taste for serious music' and 'taste for pop' are revealed in separate factors (Factor I and this factor, i.e. Factor IV, respectively). Even so, the factor loadings on both factors confirm an element of oppositeness.

Factor V does not parallel any of the taste factors from the original study. (They are all already accounted for in Factors I to IV.) However, it does overlap with Factor III of the 'evaluation analysis'. In the earlier discussion it was suggested the critical distinctions were between smooth flowing melodic music and syncopated, jazzy rhythmic music and the relevance of activity was not mentioned. In the present analysis 'activity' is undoubtedly a real relevance and the factor loadings parallel the degrees of activity of the music (see Table 12 - 1) as well as paralleling the loadings for Factor III of the 'evaluation analysis'. This is a factor indicating evaluation of active and rhythmic music.

Factor VI is a quite specific factor reflecting the unique criteria that are involved in evaluation of atonal twentieth century music. It is interesting to note that all but two of the taste variables have negative loadings on the music of Bartok. Obviously the atonal music of which Bartok's is an example, is of little interest to those who have a taste for more common styles.

Discussion of the factor analyses: The 'evaluation analysis' provides results which reflect, to a limited extent only, the divisions frequently made by musicians concerning different kinds of music. Thus the distinction between classical or serious music and non-classical styles does reveal itself and so too does the classical/romantic dimension. However, the factors go beyond this level of description in providing an alternative, and

and/

and psychological, framework for conceptualisation about musical evaluation and taste. That the factors also reflect to quite a substantial extent the three semantic differential dimensions is, we believe, no weakness. The input for the analysis did not particularly lead to such results and they must therefore result from the very considerable importance of these factors. Here it is important to stress that they reveal this importance in two ways. First quite directly: different ratings of music can be classified as falling into one of the three categories - evaluation, potency or activity. However at present a second manifestation of importance is to be seen in the evaluation of different pieces of music: the criteria used in evaluation are not independent of the activity of the music, or its potency or also of its popularity, a feature closely related to but not identical with its evaluation. In the larger analysis the data is collected by making use of two quite independent techniques, one of which is general and uses statements of attitudes or opinions (which could be unreliable), the other of which is quite specific and uses ratings of different pieces of music. Despite this, the factors obtained show a real link and are not specific to one or other kind of data. This helps to confirm the validity of the results and this is further attested by the meaningfulness of the results and the way they parallel the results in the more limited analysis.

The major benefit of the larger analysis results from the way that the two separate parts complement each other to provide a fuller explanation of musical taste and to reveal the nature of the complexities of taste and evaluation.

Personality Correlates of the Semantic Differential Results

Since the first four factors to be extracted in the larger analysis coincide with the taste factors already discussed, the personality correlates of the pieces of music whose evaluations load highly on these factors can be expected to parallel the findings concerning the personality correlates of the taste factors. To check whether this is the case, the same kind of policy is adopted as in the previous chapters. The measures of 'evaluation' for particular pieces of music are correlated with the personality factors and on the musical side, the variables are chosen to represent the factors well.

Variable	J.E.P.I.			H.S.P.Q.															
	E	N	A	B	C	D	E	F	G	H	I	J	O	Q2	Q3	Q4	QI	QIII	QIV
Semantic differential "evaluation" of																			
Bach	− .05	+	−	+ .001	−	+	− .01	−	+	− .05	+ .01	+	−	+	+	+	− .01	− .001	−
Vivaldi	−	−	−	+ .05	−	−	− .05	−	+ .05	+	+ .01	+	−	+	+	−	−	− .05	−
Brahms	−	+	−	+	−	−	−	−	+	+	+	−	−	+	+	−	−	−	−
Bruch	−	+	−	+ .05	−	−	−	−	+	−	+	+	−	−	+	−	−	−	−
Trad.jazz	+	+	+	−	+	+	+	+	−	+	−	−	+	−	−	−	+	+	−
Song, "Bridge over Troubled Water"	+	+	+	− .05	+	+	+	−	−	−	−	−	+	−	+	+	−	+	+
"Play Bach" (Lonssier)	+	− .05	−	+	+	−	+	+	+	+ .05	−	+	−	−	+	−	+	+	−
Prokofief	+	−	+	+	−	−	+	−	+	−	+	−	−	−	+	−	−	−	−
Bartok	+	− .05	+	+	+	−	+	+	+	+	−	−	−	−	−	−	+	+	−

TABLE 12 - 5 SIGNIFICANCE OF THE CORRELATION COEFFICIENTS BETWEEN THE PERSONALITY FACTORS AND THE SEMANTIC DIFFERENTIAL EVALUATION MEASURES FOR THE 9 MUSICAL EXTRACTS RATED

In Table 12 - 5 the results are presented using the same conventions to maintain readability that were used in Tables 10 - 7 to 10 - 9. There are differences in the personality correlates of different pieces of music - a finding which is only to be expected. Table 12 - 6 therefore summarises some of these results so that they can be compared with the data of Table 11 - 3, and for this purpose reliance is placed on the factor analyses reported in this chapter. The four most important factors from the large analysis are used to determine the grouping of the variables, but only evaluation measures (and <u>not</u> the 'taste variables') are employed.

	Intelligence Factor B^+	Extraversion Extra-version (J.E.P.I.)	Extraversion Extra-version (H.S.P.Q.)	Self Sufficiency (v Social Pliability) G^-	Self Sufficiency (v Social Pliability) Q_2^-	Emotional Sensitivity I^+
Factor I Bach Vivaldi (Taste for classical music)	.31 (.25)	-.17 (-.14)	-.23 (-.03)	.23 (.18)	.09 (.02)	.33 (.26)
Factor III Bruch Brahms (Taste for folk music = preference for non-potent music)	.16 (.11)	-.09 (.02)	-.06 (.00)	+.10 (+.11)	+.01 (-.07)	+.11 (+.10)
Factor II Trad jazz (Taste for light music)	.00 (+.02)	+.09 (+.20)	+.15 (+.16)	-.01 (+.06)	-.13 (-.13)	-.11 (+.07)
Factor IV "Bridge over Troubled Water" (Taste for 'pop')	-.24 (-.04)	+.14 (+.27)	-.01 (+.10)	-.03 (-.03)	-.03 (-.29)	-.10 (-.14)

The figures in brackets are the equivalent correlation coefficients reported in Table 11 - 3.
There are no correlations between the <u>factors</u> and the personality measures: the evaluation measure of particular pieces of music were selected to represent the factor. The pieces of music are indicated in the table: where there are two the average of their correlation coefficients is quoted.

TABLE 12 - 6 CORRELATION COEFFICIENTS BETWEEN SOME PERSONALITY FACTORS AND VARIABLES REPRESENTING THE FACTORS FOUND IN FACTOR ANALYSIS OF THE SEMANTIC DIFFERENTIAL 'EVALUATION' RATINGS

The personality correlates of the factors which resulted from the analysis of the semantic differential evaluation measures are remarkably similar to those for the taste factors.

The correlates of Factor III were tabulated above those for Factor II because Factor III most nearly equates in character to the factor of 'Taste for Folk Music'. However, the statistics for Factor III are based only on the evaluations of the music by Bruch and by Brahms. This is of interest since it implies that the distinction between orchestral and folk music is not a crucial feature of the situation. What is important is that both folk music and the music of Bruch and Brahms (as used in this study) considered to lack in potency. Thus it is not the style of well liked (or highly evaluated) music which is related to personality factors so much as the perceived characteristics of the music (such as whether it is 'potent').

Congruence between Semantic Differential Ratings of 'Self' and of Music

The nature and measurement of congruence: The concept 'self' was rated on the semantic differential in the hope that congruence between ones self-rating and rating on music might be related to personality variables.

Congruence occurs when the ratings on the two concepts, in this study 'self' and a specific piece of music, are similar. To measure it is first necessary to consider the three factors, Evaluation, Activity and Potency as being represented by the three axes of a 3-dimensional space. For any one concept, a person's scores for each of the three factors are used to plot the point that represents the concept. The greater the distance between the points repreaenting any two 'concepts', the less congruent these are.

This can be illustrated by using the figures in Table 12 - 1. Overall, the congruence between (say) 'self' and the Brahms music is greater than the congruence between (say) 'self' and the 'pop' song 'Bridge over Troubled Water': this is intuitively grasped from inspection of the scores for Evaluation, Activity and Potency. However, the use of a little elementary geometry and algebra enables a precise measure to be made of the distance between the concepts in the semantic space. The greater this distance is, the less the congruence between the concepts: the semantic distance can be thought of as the converse of congruence. The illustration is unrealistic in one respect. For each person there are scores for each of the three factors for each piece of music and for 'self', whereas in Table 12 - 1 the figures

figures/

figures are averages for all subjects. Thus, the semantic distance may vary considerably from person to person. It is these individual differences, it is hypothesised, that may be related to personality differences.

One (essentially technical) problem arose from the considerable variations in the ratings of the pieces of music. This may be illustrated by taking a hypothetical example. Let us consider a person whose ratings of himself and of the two pieces of music indicated were as tabulated below:

	Evaluation	Activity	Potency
'Self'	34	9	11
'Bridge over Troubled Water'	34	9	11
Play Bach	30	9	11

Here, because of the identity of the measures of Evaluation, Activity and Potency for 'Self' and 'Bridge over Troubled Water', these two 'concepts' are at the same point in semantic space, the semantic distance between them is zero and there is perfect congruence between the ratings of oneself and of the piece of music. A comparison of the ratings for 'Play Bach' and 'Self' reveals some semantic distance between these concepts and therefore a lack of complete congruence.

It should be noted, however, that a hypothetical individual's self-evaluation is clearly high - as can be seen by comparing it to the average score for self-evaluation, 28.4. His evaluation of the song 'Bridge over Troubled Water' is relatively poor when compared to the evaluations of it made by others. Furthermore, the rating of the activity of the song is much higher than average whereas rating of the activity of 'self' is much lower. One must ask therefore if there really is such a similarity between the ratings of 'self' and of the song 'Bridge over Troubled Water' that there is complete congruence between these concepts. We think not.

We believe it is appropriate to take the normative data in Table 12 - 1 and use it to provide meaning to each of the figures being compared. If this is done, the ratings for our hypothetical example could be rewritten thus:

	Evaluation	Activity	Potency
Self	Above Average	Below Average	Average
'Bridge over Troubled Water'	Below Average	Above Average	Average
Play Bach	Above Average	Below Average	Average

This reanalysis of the figures indicates a much greater measure of congruence between the concepts 'Self' and 'Play Bach' than between 'Self' and 'Bridge over Troubled Water'. We believe the interpretation of the results is more meaningful in the table immediately above than when the 'raw' figures are used. The mathematical formula for calculating the semantic difference between two concepts was therefore adjusted so as to take into account the 'norms' for the various pieces of music and for 'self'. These 'corrected semantic distances' were used in all the analyses reported in this chapter.

Congruence and personality: To find out if the individual differences in the degree of congruence between 'self' and different pieces of music is related to personality differences, correlation coefficients were computed between the various personality measures used and the nine variables which describe the 'corrected' semantic distances between 'self' and each of the 9 pieces of music.

Of the 180 correlation coefficients (which are presented in Appendix 30) 80 are negative, only 17 coefficients exceed $\pm$.2 and of these only 2 exceed $\pm$.3. Overall, there is little to suggest that there is anything of significance or importance in these results. Scrutiny of the correlation matrix failed to reveal any pattern in the few statistically significant results. For example, they were not consistently found with the same personality characteristic - or the same piece of music. Factor analyses (the details of which are not reported here) suggest a weak general factor which all of the 'semantic distance' variables load on. The pieces of music with the highest loadings are the 'Play Bach', The Prokofiev, and the Brahms. The factor seems quite unrelated to any that have been found in any other using semantic differential data and, furthermore, the pieces of music which best represent the factor seem to bear no observable relationship with the personality measures. In short, the study of the congruence between personality characteristics and the characteristics of pieces of music, seems not to have proved fruitful.

Only one isolated finding is noteworthy. In the correlation matrix, the largest correlation coefficient (-0.36, $p = .001$) is between extraversion, as measured by the J.E.P.I., and the semantic distance between 'Self' and 'Trad jazz'. The negative correlation reveals that it is with extraverts that congruence is highest between oneself and trad jazz music. This is of interest because trad jazz is the most active of the the/

the 9 pieces of music (see Table 12 - 1). It is consistent with our findings regarding links between extraversion, rating music as 'active' and rating oneself as active. However, this finding is not paralleled in any of the other correlates of extraversion and it is not in the data regarding congruence (semantic distance) but in the simpler data about ratings of activity these links are clearly seen. This is what we deal with next.

Activity and extraversion:

	Mean 'Activity' Scores for the music	Ranking of the 'Activity' Scores	Correlation Coefficient between extraversion and activity of the music	Ranking	Correlation Coefficient between activity of self and activity of the music	Ranking
Trad jazz	20.1	1	.15	2	.30	1
Brahms	16.1	2	.14	3	.26	3*
Prokofiev	15.8	3	.20	1	.15	5
Vivaldi	14.6	4	.07	4*	.26	2*
Play Bach	14.0	5	.07	5*	.25	4
Bach	12.5	6	-.01	7	-.04	6
Bartok	10.3	7	+.01	6	-.11	7
"Bridge over Troubled Water"	6.8	8	-.11	8	-.15	8
Bruch	6.4	9	-.28	9	-.20	9

Rank order correlation between (i) activity of the music and (ii) the correlation between extraversion and activity of the music, is .93. The rank order correlation between (i) activity of the music and (ii) the correlations between activity of onself and activity of the music, is .92. These rankings are correct. The ranks only look as if they should be shared because the figures have been rounded for purposes of reporting.

*These rankings are accurate and are based on correlation coefficients correct to 3 decimal places.

TABLE 12 - 7 RANKINGS OF THE MUSICAL EXTRACTS ACCORDING TO THEIR 'ACTIVITY' AND HOW RATINGS OF THEIR ACTIVITY CORRELATE WITH RATINGS OF 'SELF'

From Table 12 - 7 we can see that when music is active (as popularly agreed) then the more extravert one is, the more active the music is rated. However, when music is not active the more extravert one is, the less active the music is seen to be. Thus the extravert seems to be more sensitive to differing degrees of activity in the music. Exactly the same argument can be used if one considers the ratings of the 'activity' of one-'self': this is not unexpected since there is a high correlation between extraversion and rating oneself as active ($r = .53$). These findings are of interest because they suggest that ones perception of one element of music (how active it is) is determined to some extent by a personality characteristic.

Again, the quality in the music that is differentially perceived is not one that has traditionally been studied by musicians. The psychological approach leads to findings the musician or musicologist might not stumble on.

Activity, extraversion and liking for classical music - a digression to reconsider some of the congruence data: This section has dealt with the links between an individual's level of extraversion and how active he perceives different kinds of music to be. Earlier we noted a slightly different finding relating extraversion to interest in 'pop' and introversion to interest in classical music. These two can be seen acting jointly in the 'congruence' data. To do so some of the data related to the "isolated interesting finding" in the congruence data (see page 234) must be used along with it and this is presented in Table 12 - 8.

	Correlation Coefficient between Extraversion (J.E.P.I.) and the 'semantic distance' between ratings of self and music	Correlation Coefficient between Extraversion (H.S.P.Q.) and the 'semantic distance' between ratings of self and music
Trad jazz	-.36	-.17
Brahms	-.08	+.06
Prokofiev	-.14	-.04
Vivaldi	-.15	+.11
Play Bach	-.13	+.07
Bach	+.16	+.29
Bartok	+.04	-.01
"Bridge over Troubled Water"	-.01	+.19
Bruch	-.01	+.15

(Negative correlation coefficients denote high levels of congruence)

TABLE 12 - 8 CORRELATION COEFFICIENTS BETWEEN EXTRAVERSION AND SEMANTIC DISTANCE BETWEEN SELF AND MUSIC

The two columns in this table should parallel each other since the only difference is in the measures of extraversion used. In view of the relationship between extraversion, ratings of oneself and the perceived activity of music that has been discussed, one would expect (other things being equal) the correlation coefficients to be lowest at the top of the columns and highest at the bottom, since the various pieces of music are listed in order of activity. This general pattern is evident, but the correlation coefficients relating to Bach's music are exceptional for, although the Bach is not considered the least active music, they are the highest coefficients (and there is the lowest level of congruence). This anomaly suggests that other things are not equal, and that some further principle is necessary for understanding the results.

Now, with classical music (e.g. Bach and Vivaldi) high evaluation of the music is associated with low evaluation of oneself (for these two pieces of music there are negative correlations significant at the .05 level). Consequently semantic distance tends to be increased. Furthermore, high evaluation of Bach's music is negatively correlated with extraversion: this too is significant at the .05 level (see Table 12 - 5). Consequently, those who evaluate Bach's music highly tend to be introvert, and there is relatively poor congruence between the ratings of themselves and of the music of Bach. This, we believe, explains the apparently anomalous position in Table 12 - 8.

This 'digression' serves one useful function. That is to highlight the difficulties in interpreting complex data such as obtained in the correlation matrix where semantic distance (as an index of congruence) is correlated with personality variables. The extract from that matrix which constitutes Table 12 - 9 could only be understood by reference to two separate principles concerning the relationships between extraversion and the semantic differential data, and these principles could only be recognised by consideration of simpler data - where each of the semantic differential dimensions is considered separately.

A Few Concluding Comments on the Semantic Differential

The use of the semantic differential with music has proved useful. Possibly its greatest value is in providing information about musical preferences and evaluation which is directly based on listening to music. The questionnaire items concerning taste for different styles suffer from the drawback of being measures of musical tastes that are rather too indirect.

It is, of course, gratifying that there is some agreement between the findings from the questionnaire and the findings from the semantic differential. However, the fact that different extracts of music of essentially the same type could get different evaluation ratings does suggest that the semantic differential is providing a more accurate and detailed picture as a consequence of its greater validity. This can only be of value in the search for correlates of evaluation of music of different kinds.

The rating of music for activity and potency goes beyond what is possible with a simple questionnaire. Yet it has been shown that these are two qualities that are perceived in music and, further, they have been shown to be of some importance. Of especial importance here is the dimension of potency, for it is not only a quality that distinguishes folk music from serious music. The distinction between potent and non-potent music is, we contend, also revealed in ratings of different pieces of classical music. This suggests that this dimension ought to be treated as an important one in music and that the traditional, possibly more musicological, categories might well be supplemented by such psychological ones. We are arguing that the use of semantic differential ratings of music is valuable where the three semantic dimensions are separately considered. However, the use of the semantic differential as a versatile technique which allows the congruence between ratings of music and other ratings, such as ratings of personal characteristics, to be studied has not proved helpful. This approach seems to fail because it does not simplify what is being studied in such a way that relationships in the data can be recognised. In consequence, one is forced to accept that what appeared to be a great strength of the semantic differential technique - its versatility which enables quite different 'concepts' to be compared through a study of congruence - is in fact possibly something of a liability. Our study of congruence was an interesting technical exercise - but any findings of real significance came from the simpler analysis of the semantic differential technique.

CHAPTER 13

THE PERSONALITY OF THE MUSICIAN - THE BASIC PROFILE

Results Based on the E.P.I.

Extraversion: According to Eysenck, extraversion is revealed in behaviour in at least two main ways; first in the individual's liking for the social contacts he so typically makes, and second in his impulsiveness or lack of control. One might hypothesise that the musician would be an introvert, rather than an extravert, for the (self-)discipline and the lonely practice that are required to master an instrument and the principles of music would not appeal to the extravert. On the other hand, one could well argue that most musicians are performers of some instrument or other, and that as performers they seek enjoyment not only from their music but also from the response from their audiences to their performance. One would not expect the performer to be the typical introvert, "a quiet retiring sort of person . . . reserved and distant, except to intimate friends." (Eysenck and Eysenck, 1964) However, many of those being studied have deliberately decided against trying to make careers as performers in favour of teaching: thus we have no special reason for arguing they might be relatively extraverted. In consequence our hypothesis would be that our subjects would be of no more than average extraversion.

To investigate just how extravert musicians are, the results of our subjects on the E.P.I. were used. Since the subjects were drawn from two institutions, a Music Academy and a College of Education (which for convenience shall be called the 'Academy' and the 'College') and since both men and women were tested, it was felt appropriate to check lest there be significant differences between the institutions or the sexes that would need to be taken into account in a consideration of the results.

The first check carried out was for sex differences. Although no statistical differences were found between the men's and the women's scores for extraversion, the women were a little more extravert than the men at both the College and the Academy. As Table 13 - 1 shows, this sex difference appears to be especially sizable with the College students, and it is conceivable that teaching music does not attract quite the same kind of men and women.

	Men			Women				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
Academy	10.00	4.30	23	10.91	5.08	55	.75	N.S.
College	11.30	4.62	67	12.50	5.02	76	1.48	N.S.
Both	10.87	4.50	84	11.90	4.99	126	1.52	N.S.

TABLE 13 - 1 EXTRAVERSION RESULTS (E.P.I.) BROKEN DOWN BY SEX (AND INSTITUTION)

However it is inappropriate to speculate too much about this difference since it is not established by statistical tests. Nonetheless, it may be more important than is apparent: in the manual for the E.P.I. it states, "women tend to score lower on E."

There is a greater difference between the Academy students and the College students than between the sexes. The latter are much more extravert. Again, the differences are not statistically significant, although they are very nearly so. (Table 13 - 2)

	'Academy'			'College'				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
Men	10.00	4.30	23	11.30	4.62	67	1.23	N.S.
Women	10.91	5.08	55	12.50	5.02	76	1.78	N.S.
Both sexes	10.64	4.85	78	11.94	4.86	143	1.90	N.S.

TABLE 13 - 2 EXTRAVERSION RESULTS (E.P.I.) BROKEN DOWN BY INSTITUTION (AND SEX)

In comment on Table 13 - 2, it is interesting that the life style imposed on students at the Academy is necessarily quite different from that enjoyed by students at the College. At the Academy almost all tuition is individual and there are few occasions when students meet together. At the College the music students rarely have opportunities to be alone. It is possible that the Academy students had learned to accommodate to the Academy life style by being marginally more introverted. This hypothesis is supported by the fact that students at the College who had trained at at/

at the Academy were typical of the College music students and were more extravert than the students currently in training at the Academy.

It is legitimate to combine the results of all the groups to produce overall statistics (Mean = 11.49, S.D. = 4.82). However the distinction between the College and the Academy students, as well as between the sexes, is maintained for much of the following work.

To judge the extraversion of our students, their results are compared with both the general population norms and with student norms. The two sets of student norms in the E.P.I. manual are of doubtful validity. The "student" norms are almost certainly based largely on university students and it is quite reasonable to suppose that our musicians could differ from typical university students: certainly only a minority (28 students, all of whom were in the College sample) had a university background. The "student teacher" norms, at best, have a face validity for the College musicians, but Eysenck's sample is quite unrepresentative of the student teachers at the College. Eysenck has over 98% women and no doubt his students were virtually all non-specialist, non-graduate students following a 2 or 3 year Diploma or Certificate course.

Because of the inappropriate nature of the available norms, use was made of 'local norms' for graduate and specialist students at the College.* These are certainly highly appropriate for the College music students. In using these norms, there is the benefit that there are separate figures for each sex.

	College Musicians			College Norms				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
Men	11.30	4.62	67	12.16	4.05	110	1.25	N.S.
Women	12.50	5.02	76	12.24	4.33	240	.40	N.S.

TABLE 13 - 3 A COMPARISON OF THE COLLEGE MUSICIANS' EXTRAVERSION SCORES AND NORMS BASED ON A REPRESENTATIVE SAMPLE OF THE COLLEGE STUDENTS

*These were first published in Carr (1972). In collecting the data for these norms Dr. Carr was assisted by myself and other members of the psychology department at the College.

Table 13 - 3 reveals no significant difference between the results of the musicians and the student norms for the College. With the less appropriate 'student teacher' norms of Eysenck, the Mean is 12.37 and the S.D. 4.46. Our College music students do not have results which are significantly different from these. When the results of the College musicians and the Academy music students are compared with Eysenck's 'student' norms or his 'general population' norms, we find no significant differences (see Appendix 31).

Overall there is no real evidence that our two groups are significantly more or less extravert than other students or student teachers, or members of the population as a whole. We find it surprising and disappointing that the most interesting results, the comparison of the students at the College and the Academy is a non-significant one which may possibly be best explained by reference to the very different kinds of environments in which the students are educated.

In our initial hypothesising, Eysenck's ideas about extraversion were described and this was entirely appropriate in view of the fact that the test used to measure extraversion is Eysenck's. However, Eysenck's ideas about extraversion are different from, and possibly more limited than, earlier writers' and they do not necessarily provide the most fruitful foundations for this particular study. The difference that has been noted between the students in the two institutions has been attributed to the life-styles at these institutions. However, while this may affect the overt behaviour of our subjects, one may question whether each individual, as a person, has really changed. This line of thinking which draws a distinction between an individual's personality and his behaviour patterns (which, inevitably, are greatly influenced by his social environment) bears some similarity to Jung's thinking. He, in a way that was typical of one deeply involved in analytic approaches to psychology, stressed the difference between the conscious and the unconscious. Of special importance in this connection is the fact that in every individual extraversion or introversion will predominate. Yet,

> "this only applies to the conscious mind because the unconscious mind is believed

believed/

> believed by Jung to be, like the reflection of a mountain in a lake, the mirror-image, the reverse, of the conscious. Thus the individual with a predominantly extravert and thinking temperament is unconsciously introvert and emotional, and the individual with an introvert and intuitive temperament unconsciously extravert and sensual."
>
> (Brown, 1961)

Because the approach adopted by the scientifically rigorous such as Eysenck, cannot accommodate the Jungian paradox of the individual having constituents in his personality which are opposite, the initial hypotheses may have been too simplistic. We believe that the musician with an introvert and thinking temperament may be revealed in public as an extravert and emotional performer. If this belief is widely shared, then it does cast some doubt on the validity of Eysenck's approach: even if it is not wrong, it may be so limited that some important aspects of Personality are overlooked. The distinction that has been made here is, we shall see, one that has relevance later.

Neuroticism: This is the factor which reflects the individual's emotionality or emotional lability. Since an important element in music appreciation involves making emotional responses to music, the person whose emotions are too well controlled may not be able to appreciate music fully, both emotionally and intellectually. Low scores on 'N' may imply some lack of sensitivity and place limits on ones potential for musicianship. A fairly rigid control, or even over-control, of emotions could affect both performers and listeners, although the effects of the control may be much more evident with the performers. Higher emotionality is unlikely to place constraints on musicianship in the way that low emotionality might. In consequence one would hypothesise that neuroticism will be higher for the musicians being studied than for others.

Again the distinction between the 'persona' and the person may be pertinent. It is widely recognised that virtuosi differ quite substantially in the kind of performances they give. It seems probable that many performances which are deeply moving emotional experiences result from the close study of the work performed. It may be that the soloist who in his practise or rehearsal as well as in the performance so controls his own emotions that he can explore, as an intellectual exercise, the subtleties

subtleties/

subtleties and nuances of a composition, does in the long run provide a more satisfying musical experience. However, if the paradoxical relationships between thinking and feeling, between emotionality and stability, are a feature of personality, it is difficult to predict what kind of person the musician will be.

The investigation of our subjects' level of emotionality or neuroticism parallels that of their extraversion and before the crucial comparison of the musicians' scores with the norms, the importance of their sex and of the institution they are studying in, is considered.

	Men			Women				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
Academy	12.22	5.29	23	12.78	4.54	55	.45	N.S.
College	10.79	4.85	67	14.36	4.66	76	4.46	.001

TABLE 13 - 4 NEUROTICISM RESULTS (E.P.I.) BROKEN DOWN BY SEX AND INSTITUTION

The most notable feature of Table 13 - 4, which considers the sex difference in neuroticism, is the very great difference between the women at the College studying to be music teachers and the men there. This difference is not only found when the figures for all years are combined: it is found quite consistently each year, though in some years the difference is non-significant due to the relatively small numbers involved. No real sex difference is found with the students at the Academy.

The results of the College men and the Academy men do not differ significantly. However, the College women's results are just about high enough to be significantly different from the Academy women's results ($t = 1.957$). The conclusion to be drawn from all these figures is that the sex difference among the College students results from a 'Sex x Institution' interaction since the difference between the average scores for all students in the two institutions is quite negligible (Mean for Academy students is 12.62, for College students 12.69).

Of most importance for understanding the situation are the results of the women. From them it is evident that the women who enter a course of training to be music teachers are probably not typical of (all) women musicians, but are more emotionally unstable. This pattern of results is not unlike that of 'student teachers'. The norms for College students show the women to be considerably more 'neurotic' than the men (see Table 13 - 5). However this can only be a partial explanation, as the difference between the sexes is considerably greater with the musicians than with the other students at the College.

The reasons for the considerable sex difference with the musicians at the College is hard to discern. One hypothesis could be that in the College there is a much more authoritarian régime and that the women's reactions are greater to this. The College régime is indeed authoritarian. However, even though the demands made of the students at the Academy are quite different from those made at the College, it too is highly authoritarian in structure. (Indeed is this a feature of all music schools or places that train musicians? If so, this could throw light on the nature of the musicians personality.)

It is worth commenting on the effects of the high neuroticism scores shown by the women music teachers. They could indicate that these women would be less consistent in their teaching and/or classroom control techniques than their more stable colleagues. This is not to imply that a slightly higher than average score for neuroticism is a handicap - it may even be an advantage. What is important is the relatively large proportion of women music teachers with really high scores. A score of 19 for 'N' is almost exactly 2 S.D.'s above the population mean, but it is just about 1 S.D. above the mean for our women training to be music teachers. It is to be expected that with the high scorers (say $N > 20$) that these are the greatest risks, risks of bad teaching and/or of neurotic breakdown, and a surprisingly high proportion of women music teachers have such high scores.

Having focused on the high scores of the women who plan to enter music teaching, it is proper to balance the picture by noting that the men are also untypical in being more stable than other musicians. However, they are not more stable than teachers or students or student teachers. Indeed, they tend to be fractionally less stable than such groups. This we show in the the/

the comparison of our musicians results with the normative data available. Again, the norms developed in the College rather than Eysenck's norms are used first.

	College Music Students			College Norms				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
Men	10.79	4.85	67	9.12	4.16	110	2.35	.01
Women	14.36	4.66	76	11.52	4.40	240	4.69	.001

TABLE 13 - 5 A COMPARISON OF THE COLLEGE MUSICIANS' NEUROTICISM SCORES AND NORMS BASED ON A REPRESENTATIVE SAMPLE OF THE COLLEGE STUDENTS

Table 13 - 5 makes use of the College musicians and not of the music students at the Academy for whom the College norms are not particularly relevant. Table 13 - 6 provides comparisons of the results of both College and Academy subjects with the normative data provided by Eysenck in the manual of the E.P.I.

	Students			Eysenck Norms				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
College women v 'student' norms	14.36	4.66	76	10.01	5.01	189	6.72	.001
College women v population norms	14.36	4.66	76	9.07	4.78	2000	8.29	.001
College men v 'student' norms	10.79	4.85	67	10.01	5.01	189	1.13	N.S.
College men v population norms	10.79	4.85	67	9.07	4.78	2000	2.87	.01
Academy women v 'student' norms	12.78	4.54	55	10.01	5.01	189	3.89	.01
Academy women v population norms	12.78	4.54	55	9.07	4.78	2000	5.97	.01
Academy men v 'student' norms	12.22	5.29	23	10.01	5.01	189	1.90	N.S.
Academy men v population norms	12.22	5.29	23	9.07	4.78	2000	3.15	.001

TABLE 13 - 6 COMPARISON OF THE MUSICIANS RESULTS FOR NEUROTICISM WITH EYSENCK'S NORMS

It is very evident from the comparisons (Tables 13 - 5 and 13 - 6) that musicians make higher scores than typical students and typical members of the general population. In all cases, the musicians have higher scores and in all but two cases the differences are statistically significant.

Overall we have built up a picture of musicians having higher than average emotionality, which confirms our initial hypotheses with a sex difference being marked for those training to enter the teaching profession.

Results Based on the 16 P.F.

Sex differences and the like: Although there are some statistically significant sex differences*, it was not considered inappropriate to make use of the results from both sexes in the comparison of the students of the two institutions, the College and the Academy, since the proportion of men to women does not differ greatly and no 'sex x institution' interactions are noteworthy.

	College		Academy			
Factor	Mean	S.D.	Mean	S.D.	t	Sig
A	5.62	1.83	4.71	2.10	3.23	.01
B	7.90	1.52	7.91	1.63	.04	N.S.
C	4.87	1.89	5.19	2.07	1.13	N.S.
E	5.81	1.77	6.21	1.62	1.69	N.S.
F	5.76	2.01	5.81	1.94	.18	N.S.
G	5.19	1.94	5.21	1.85	.04	N.S.
H	5.23	1.91	5.27	2.19	.14	N.S.
I	6.72	1.70	7.28	1.64	2.39	.05
L	5.96	1.85	5.95	1.79	.03	N.S.
M	6.31	2.03	6.45	1.91	.49	N.S.
N	4.90	1.96	4.56	1.86	1.26	N.S.
O	5.52	1.96	5.49	2.19	.11	N.S.
Q_1	5.22	2.10	5.42	2.09	.69	N.S.
Q_2	5.97	1.73	6.19	1.86	.86	N.S.
Q_3	4.37	1.90	5.06	1.77	2.70	.01
Q_4	6.09	2.00	6.18	2.19	.29	N.S.
	N = 140		N = 78			

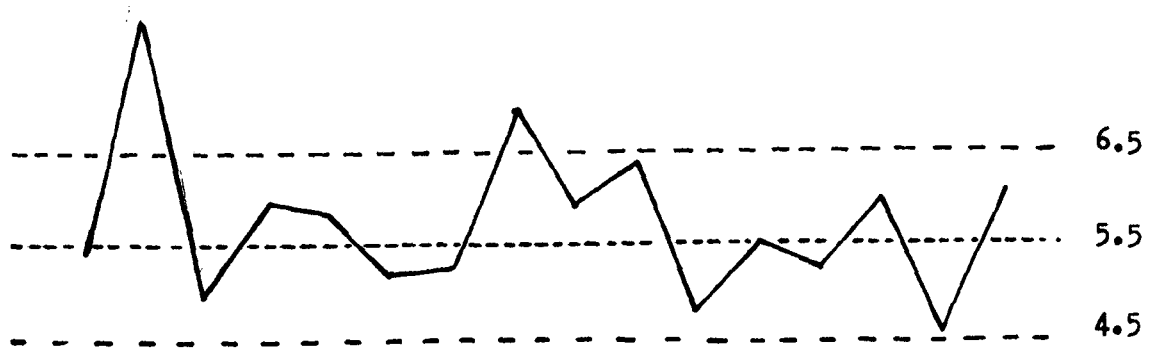
TABLE 13 - 7 16 P.F. SCORES FOR THE MUSICIANS AT THE COLLEGE AND THE ACADEMY

*These would not normally be expected in view of the scoring methods available. The form of the test, the choice of norms and such like are discussed in Appendix 32.

Most striking is the close similarity in the results (Table 13 - 7). On only 3 of the 16 factors, i.e. A, I and Q_3, are there significant differences and only one of these is surprising. With two factors (I, Q_3) the deviations from the population mean are in the same direction. The Academy students are more 'Presmic' (I^+), i.e. more emotionally sensitive and tenderminded, than the College students - a not unreasonable finding. Both groups, however, are well above average. Both groups show low 'self-sentiment integration' (Q_3^-) but the College students are the lower - an unexpected result. On Factor A, the College students are about average, whereas the Academy students tend to be rather reserved and detached: this parallels the extraversion findings with the E.P.I.

Because of the great similarity in the two sets of results, they have been combined so as to give a personality profile for musicians (Table 13 - 8). The numbers of results used and the consistency suggest that these results may provide as good a description of musicians as is presently available.

The personality profile of musicians:



	A	B	C	E	F	G	H	I	L	M	N	O	Q_1	Q_2	Q_3	Q_4
Mean	5.3	7.9	5.0	6.0	5.8	5.2	5.3	6.9	5.9	6.4	4.8	5.5	5.3	6.0	4.6	6.1
S.D.	2.0	1.6	2.0	1.7	2.0	1.9	2.0	1.7	1.8	2.0	1.9	2.1	2.1	1.8	1.8	2.1

TABLE 13 - 8 16 P.F. PERSONALITY PROFILE FOR MUSICIANS BASED ON THE RESULTS OF ALL MUSICIANS*

*These results, correct to 2 decimal places are to be found in Table 13-9.

The first point to stress is that our musicians are intelligent. Their score on Cattell's Factor 'B' puts them, on average, nearly $1\frac{1}{2}$ standard deviations above the mean. This is equivalent to an I.Q. in the 120's. It is, of course, to be expected that the musicians will have above average intelligence, for most of them have trained at College or University and had therefore reached required minimum standards. This suggests intelligence may be as much a prerequisite for musical skills as for any other academic skills.

The non-intellective aspects of the musicians personality may be thought of as resulting from release of a high level of inner psychic energy. Thus we have high scores for 'Ergic Tension ' (Q_4^+), which Cattell suggests typifies a surplus of mental energy welling up from the 'id'. The idea of a surplus of energy is evident, too, in different guise, in the above average score on 'Surgent ' (F^+). 'Low ego-strength' (C^-), which is often related to high ergic tension, also typifies the musicians. The (relatively) uncontrolled general emotionality which is characteristic of low ego-strength accords, quite satisfactorily, with the suggestion being put forward. So too does the slightly low score for 'super ego-strength' (G^-). Implicit in the interpretation of the profile is a psychodynamic description of the musician as a person whose energies are not tightly controlled by ego or super ego.

Consistent with the points just discussed is a finding that musicians tend to be emotional. This is clearly evident in the scores for 'Naivete' (N^-), (forthright, unpretentious, warmly emotionally involved); Low ego-strength (C^-), (affected by feelings, emotional); and Presmia (I^+), (emotional sensitivity). The most outstanding of these characteristics is presmia, Cattell's acronym for "projected emotional sensitivity". This implies a fastidious aesthetic personality rather than a tough, no-nonsense, masculine one.

It is interesting to hypothesise that the emotionality, by itself, may be relatively unimportant: it is how and where it is directed that distinguishes the musician from others. Presmia is projected emotional sensitivity. Protension (L^+) on which our musicians also score highly is "projection and inner tension". Projection, in a Freudian sense, Cattell suggests, is an essential aspect of both of these important characteristics. The development of musical interests may take place when a person of psychic psychic/

psychic energy and emotionality has his energy and emotionality directed outwards into musical activities, possibly as a result of the kind of home background he has enjoyed.

A further aspect of the musicians personality is an independence of thinking and behaving. His Autism (M^+) suggests imagination rather than concern for practical 'down-to-earth' matters, and paralleling this is Low Self-sentiment Integration (Q_3^-) which indicates a lack of concern with social image or character. Dominance (E^+) - a factor for which musicians scores are a little above average - also reveals this characteristic, since the dominant tend to be less conventional or conforming.

Another identifiable trait is a lack of sociability. High Self-sufficiency (Q_2^+) which our musicians have, is a major factor in introversion. The musicians studied seem <u>not</u> to be predisposed to group activities and rather prefer to work by themselves. This quality is also evident in Autism (M^+), "High M individuals in groups tend to feel un-accepted, but unconcerned". Similarly the slightly lower than average score on Factor H confirms shyness, but also suggests emotional caution and restricted interests. The stenscore for this factor is much less extreme than for Q_2. This may be because high scoring for Factor H can indicate emotional and artistic interests and the musicians share these traits.

The only inconsistency is to be found with the below average score on Factor Q_1. This indicates Conservatism of Temperament and is surprising in view of the scores on M^+ and Q_3^- which indicate being imaginative, un-conventional and independent. Cattell makes a distinction between conservatism of temperament and conservatism in overt behaviour. That Cattell feels forced to make this distinction, and that he adopts psycho-dynamic terms, suggests that his disagreement with Eysenck, as to the number and level of personality factors that are of importance, parallel our criticisms of the oversimplified picture provided by Eysenck's model of Personality. Unfortunately, the findings suggest a lack of conservatism <u>of temperament</u>. However, many would argue that musicians, <u>in their behaviour</u>, present an image of conservatism. Far from clarifying the situation, the distinction merely aggravates the problem.

A comparison with student norms: The question arises, To what extent is the personality description that has been given, one of students rather than of musicians? To answer this, normative data on the 16 P.F. is considered.

	Results for Musicians at College and Academy		College Norms for Student Teacher			
	Mean	S.D.	Mean	S.D.	t	Sig
A	5.33	1.99	5.59	1.65	1.57	N.S.
B	7.89	1.57	7.08	1.82	5.43	.01
C	4.96	1.95	5.50	1.66	3.29	.01
E	5.95	1.73	5.51	1.71	2.87	.01
F	5.84	1.96	5.75	1.95	.52	N.S.
G	5.21	1.93	6.08	1.58	5.43	.01
H	5.26	2.00	5.28	1.93	.11	N.S.
I	6.93	1.71	6.08	1.96	5.27	.01
L	5.91	1.82	5.99	1.91	.48	N.S.
M	6.38	1.97	5.54	1.69	5.06	.01
N	4.79	1.93	5.00	2.18	1.16	N.S.
O	5.51	2.05	5.64	1.56	.78	N.S.
Q_1	5.27	2.07	5.85	2.03	3.17	.01
Q_2	6.00	1.77	5.23	1.72	4.94	.01
Q_3	4.58	1.81	5.86	1.91	7.77	.01
Q_4	6.10	2.06	6.24	1.66	.82	N.S.

TABLE 13 - 9 A COMPARISON OF THE MUSICIANS' 16 P.F. RESULTS WITH THE 'COLLEGE' NORMS

On about half the factors the differences between the musicians and the College norms are significant and this suggests that the profile for the musicians is no mere reflection of their student status.

It is as valuable and instructive to note the similarities in the musician and student teacher profiles as the differences. Both groups are intelligent, though not equally so. Both groups make similar scores on Factor Q_4, suggesting a surplus of mental energy: it is how this energy is controlled and where it is channelled that distinguishes the groups. The teachers, with their higher ego-strength (C^+) and super ego-strength (G^+), appear more controlled, whereas the musicians are more emotional and sensitive and aesthetic (I^+, M^+). The similarity in Factors A, F and H,

H/

H, the three main factors determining the 2nd order factor 'Exvia' (Extraversion) parallels the findings based on the E.P.I. However, the musicians are less concerned with being sociable and with social approval (Q_2^+, Q_3^-).

The differences between student teachers and the musicians are, by and large, greatest for those traits which most characterise the musicians profile. This tends to confirm that the personality profile described is not that of the student or student teacher, but that of the musician.

A comparison with Shatin's results: Of greater importance is a comparison with the personality profile Shatin has provided for musicians.

	The Musicians results		Shatin's results		t	Sig
	Mean	S.D.	Mean	S.D.		
A	5.33	1.99	5.0	1.8	1.17	N.S.
B	7.89	1.57	6.7	1.4	5.42	.01
C	4.96	1.95	5.3	2.0	1.12	N.S.
E	5.95	1.73	5.9	1.7	.19	N.S.
F	5.84	1.96	5.9	1.9	.21	N.S.
G	5.21	1.93	6.1	2.0	2.93	.01
H	5.26	2.00	6.6	1.8	4.76	.01
I	6.93	1.71	7.1	1.9	.60	N.S.
L	5.91	1.82	4.8	2.9	2.68	.01
M	6.38	1.97	6.2	1.8	.64	N.S.
N	4.79	1.93	4.8	2.1	.03	N.S.
O	5.51	2.05	4.3	1.9	4.10	.01
Q_1	5.27	2.07	6.1	2.2	2.48	.01
Q_2	6.00	1.77	6.7	1.7	2.67	.01
Q_3	4.58	1.81	6.1	1.9	5.29	.01
Q_4	6.10	2.06	5.0	2.3	3.20	.01

TABLE 13 - 10 A COMPARISON OF THE MUSICIANS' 16 P.F. RESULTS WITH EQUIVALENT RESULTS OBTAINED BY SHATIN

The musicians of this study were no more like Shatin's musicians than they are like student teachers. This is revealed in a crude way by the number of significant differences, and in a more sophisticated way by means of pattern similarity coefficients. The musicians in Shatin's small group are more secure (O^-), less tense (Q_4^-), better integrated (Q_3^+), more self-

self-/

self-sufficient (Q_2^+) and less suspicious and jealous (L). They are, in other words better balanced, less anxious people. They are also less timid and shy and are more radical.

Two reasons for the differences suggest themselves. First, Shatin's subjects were older and 'better established' in their profession, points which could be of relevance. However, the fact that some were music therapists is probably much more important.

The distinctions between Shatin's results and our own are quite crucial since we hypothesise that the psychic energy and emotionality and independence displayed by our subjects lead to their becoming musicians through being diverted to Artistic ends and these characteristics are not typical of Shatin's subjects. The emotional stability and conformity of Shatin's subjects are what would be sought in therapists. It looks as if the contribution the music therapists make to the results is not inconsiderable and that their 'therapeutic', as distinct from their 'musical', characteristics are predominant.

We are inclined to disregard Shatin's results in favour of our own. The reasons for this are partly the differences discussed above coupled with Cattell's own comment that there are apparent 'paradoxes' in the musicians profile described by Shatin. Far more important is the fact that Shatin's results are based on such small numbers that they must suffer from a considerable element of unreliability. Our own results are based on much more substantial numbers.

It is interesting that the results of the present study provide profiles similar to the Artist profile that Cattell reports. The differences are slight, but possibly not unimportant. For example, the musicians are more conservative of temperament (Q_1) and have greater super-ego strength (G). These points are of interest in view of the assertions that artists are not generally like musicians and that artists are more radical, bohemian and antisocial. They suggest there is some truth in them, and this is borne out by McLeish's observations about the differences between artists and musicians (see p.73).

This chapter has described the basic personality profile of the musician. However, there are variations in this with musicians just as there were variations in the personality correlates of music appreciation in school pupils. The next chapter therefore looks more closely at the results outlined here.

Results for Academy Students based on the Bell Adjustment Inventory

The Bell Adjustment Inventory was done only by students at the Academy and not by those musicians at the College preparing to be teachers. Since this is an adjustment inventory as much as a personality test, and since we have already remarked that there are differences between régimes at the College and the Academy, the generality of the following findings must be in some doubt.

Six more or less separate aspects of adjustment are measured and the students' results for these are presented, along with the most appropriate norms, in Table 13 - 11.

		Academy Students Results		American College Norms	
		Mean	S.D.	Mean	S.D.
A.	Home Adjustment	9.1	7.6	8.0	5.8
B.	Health Adjustment	9.2	4.4	7.1	4.2
C.	Social Adjustment (v. Submissiveness)	17.0	7.7	11.6	7.1
D.	Emotionality	14.2	7.8	9.9	5.3
E.	Hostility	11.2	5.5	8.5	4.9
F.	Masculinity v. Femininity				
	Men	16.1	4.7	20.4	3.8
	Women	12.0	3.5	10.8	3.8

TABLE 13 - 11 MEANS AND S.D.'s FOR ACADEMY STUDENTS ON THE BELL ADJUSTMENT INVENTORY

For all but 'masculinity-femininity', high scores indicate poorer adjustment than low scores. The results indicate that the music students are less well adjusted than might be expected.

The most important finding may be the very high scores made by our musicians on submissiveness (social adjustment). This scale, which the author claims has a "very high degree of reliability and validity", may well parallel to a considerable extent Cattell's 'Factor I' (Presmia). This is described using such terms as "sensitive, dependent, overprotected, insecure, expecting affection and attention, seeking help and sympathy". All

All/

All these terms reveal characteristics that could as easily be classified as social maladjustments as much as tendermindedness. Indeed Cattell states that, "increasing evidence points to it [Presmia,I+] being the matrix of attitudes out of which neurotic maladjustments can arise".

If it is reasonable to consider Bell's submissiveness as analogous to Cattell's Presmia, then the results of the two tests are in agreement, and the 'submissiveness' is an integral part of the musicians personality. Bell also indicates that high scores reflect 'less confidence in a social setting'. This seems consonant with the argument (which is introduced in this chapter and developed further in later chapters) that musicians' extraversion does not necessarily reveal itself in normal social activities because musicians can 'hide in their music or behind their instruments'.

Bells dimension of emotionality again gives results which parallel those already obtained. On the E.P.I. Academy men and women both had high 'neuroticism' scores and the 16 P.F. results also led us to conclude that musicians have higher than average emotionality. The higher score on health adjustment may also parallel neuroticism (as measured by the E.P.I. since many of the neuroticism questions are concerned with questions of health). It is worth pointing out at this stage that one of the difficulties of interpreting the results from the Bell Adjustment Inventory is the fact that the scales correlate positively with moderate correlation coefficients of the order of .2 to .5.

The higher than average hostility of the music students was not anticipated though it is partially in accord with the 16 P.F. results. On the 16 P.F., factor L is a dimension ranging from 'trusting' at the low scoring extreme to 'suspicious' at the high scoring extreme. Our musicians make slightly higher than average scores on this factor.

With the masculinity-femininity scale, it was essential to consider the women's figures separately from the men's for they were, quite predictably, found to be significantly different. High scores indicate masculinity and our men's scores are more than one standard deviation below the norm for men (almost at a 'neutral' point between the norms for the two sexes). The women are a little less feminine than is typical for women in American Colleges. The men's results are the more noteworthy since male musicians are seen to fit their stereotype.

It is interesting to note Bell's comments about low masculinity scores:

> "From a counseling point of view, the usefulness of a low Mf score more often lies in directing the boy's vocational planning into fields which do not place a premium on "masculine" aggressiveness, or reassuring him or his parents that it is acceptable for a boy to study art or music or dramatics etc."

Here the stereotype of the musician as more effeminate is evident and there is, at the very least, acceptance of this. However, Bell seems to go further in positively suggesting that those who are less aggressively masculine may contemplate music as a vocation whereas those who are more masculine do not - a policy which, in the long run, would make musicians fit their stereotype.

Two hypotheses seem in accord with the evidence presented. First, social pressures and social constraints lead to individuals with particular personality characteristics becoming musicians. The evidence of the manual for Bell's test supports this. Second, by the very nature of music, certain personality types are drawn to the subject. It might be argued that the (relative) similarity of the men and women's scores on masculinity/femininity supports this. No doubt there is some element of truth in both these possibilities. However, the second hypothesis loses some of its strength when the variety of personality types that can be accommodated within the musical profession is recognised. The next chapter is concerned with such variations.

There is little that comes out of the use of the Bell Adjustment Inventory that contradicts the findings presented earlier. However, one fact is clear: music students are not just like any other students. What emerges most forcibly from the results is the need to consider <u>why</u> musicians are the way they are and one cannot help but be very conscious of the fact that personality studies of musicians (including this one) tend to provide descriptions rather than explanations of musicians' personalities.

CHAPTER 14

THE PERSONALITY OF THE MUSICIAN - SOME VARIATIONS

Sex Differences and the Personality of Musicians

A closer look at musicians' personality is necessary now that the basic personality profile has been described. The primary aim here is to discover whether there are regularly occurring differences between different groups where these groups have been selected by the application of purely musical criteria. However, there are also interesting results concerned with the sex of the musicians and these merit discussion.

Sex, as one factor which helps to determine the subjects personality profile, has already been discussed to some extent in Chapter 13. There the influence of 'sex' on the 16 P.F. scores was largely ignored, though its effect on the E.P.I. scores was given more detailed consideration.

Sex differences on the 16 P.F.: For analysis of the sex differences on the 16 P.F., the results of all the musicians, both at the College and at the Academy, are used. On most of the factors the differences in the scores of the men and the women were not statistically significant. However, significant differences were found for the factors listed in Table 14 - 1.

Factor	Men		Women			
	Mean	S.D.	Mean	S.D.	t	Sig
F	5.28	1.97	6.15	1.89	3.17	.01
H	4.86	1.98	5.50	1.99	2.28	.05
I	7.54	1.60	6.57	1.67	4.19	.01
N	5.56	1.92	4.37	1.82	4.51	.01
Q_1	4.63	2.25	5.63	1.88	3.44	.01

TABLE 14 - 1 SIGNIFICANT DIFFERENCES IN 16 P.F. SCORES BETWEEN MEN AND WOMEN MUSICIANS

The difference on I reveals that of those who became musicians men are more emotionally sensitive and tender minded than women. This, one suspects, reflects indirectly the social pressures to conform to the stereotype for ones own sex. If being a musician is not a "masculine" occupation, then those men who might become musicians may be pushed into other 'more acceptable' occupations. Only those who really are musical will enter the profession. On the other hand, with women the net may be spread wider. As we have seen in the previous chapter, Presmia is the trait that most characterises the musical personality. Our finding of men's greater presmia therefore accords well with our hypothesis.

Related to this, the men's higher score on Factor N denotes they are more socially aware, more astute and insightful regarding their position, more ambitious and disciplined and (Cattell suggests) more "aesthetically fastidious" than women. The image of the male musician seems to be of a person with a musical temperament who has quite shrewdly determined that he desires the musician's life and work and who will not be deflected from his goal by external social pressures.

Possibly related to this are the differences on the three other factors, F, H, Q_1 all of which reflect different aspects of being relatively shy, serious, restrained, conservative.

The difference which is sometimes remarked upon (e.g. McLeish, 1970) between artists and musicians of the former being bohemian whereas the latter are conservative, may well be true (as a sweeping generalisation) for the men. But it is not necessarily so true for women, and the evidence of this research is that more women seem to study music than men.*

One comment on the findings seems quite pertinent. Just as there is evidence of many school children who are potentially musically very able, but who never receive any real encouragement or tuition, so there are presumably men who might well be able to become musicians but who do not do so because of the lack of personality traits required if they are to commit themselves to the study of music.

---

*See Appendix 2 for proportions of men and women who are musicians.

There is a danger of pushing this argument too far (a danger with all psychological statements). Men entering the musical profession are not all alike. One of the reasons for this is that different musical instruments tend to be studied by people with different personalities. A corollary of this is that the study of different instruments can provide musical opportunities for quite different kinds of people.

Choice of Musical Study and Personality

Type of instrument played and extraversion: Among orchestral players it seems to be a commonplace belief that different sections of the orchestra have quite different characteristics. To investigate what distinguishing features there may be, one-way analyses of variance were carried out in which the results for each Personality trait were broken down by the principal subject of study (i.e. principal instrument studied - and this includes singing).

More interesting than any one single set of results was the consistent pattern of results that was obtained. Brass players, string players and wood wind players all have some clearly distinctive characteristics.

1st Study	E.P.I. E	16 P.F. H	A	F	Q_2*
Brass	14.77	6.00	5.90	6.50	5.20
Singing	12.11	6.14	6.09	6.30	5.77
Piano	10.94	5.00	5.21	5.67	6.17
Wood wind	12.12	5.06	4.56	6.19	6.00
Strings	9.91	4.66	4.97	5.24	6.00
Significance	.05	.01	.05	N.S.	N.S.

TABLE 14 - 2 MEAN SCORES ON 'EXTRAVERSION' TRAITS BROKEN DOWN BY INSTRUMENT STUDIED (1st STUDY ONLY)

*A low score is the more extraverted score on Q_2.

Results are provided for 4 of the factors on the 16 P.F. which have the highest factor loading on to the 2nd order variable 'Extravia'. Undoubtedly the Brass players are clearly more extravert than others. They are more outgoing, sociable, surgent, cheerful, talkative, socially impulsive and group dependent. The pattern of results is essentially the same even for those factors for which the differences are not significant.

String players seem to provide the polar opposite: they are less sociable and outgoing than other groups of instrumentalists.

The results quoted in Table 14 - 2 suffer from the small numbers who study brass, wood wind and stringed instruments. For these three groups there are less than 60 persons as compared to over 100 pianists and nearly 50 singers. To minimise the effect of this it was decided to reconsider our data and to disregard whether an instrument was a musician's 1st study or 2nd study. A 'brass' player is thus defined as a person who studies a brass instrument as either his 1st or 2nd study - and similarly for singers, pianists etc. This increases the numbers in each group since one person can be classed under two headings and have his results incorporated in both. In Table 14 - 3, which presents these results, the pianists have been excluded since only a small minority do not study piano as a first or second choice study and their results therefore add no useful information. The pattern of results is the same as that in Table 14 - 2, although the numbers on which the results are based are greater in 14 - 3.

1st or 2nd study	E.P.I. E	16 P.F. H	A	F	Q_2	Number of persons whose results are used
Brass	14.11	6.00	5.83	6.50	5.08	20
Wood wind	10.42	4.50	4.92	5.77	6.04	27
Strings	9.96	4.71	4.90	5.23	5.94	34
Singing	11.79	1.96	5.52	6.04	6.01	154

TABLE 14 - 3 MEAN SCORES ON 'EXTRAVERSION' TRAITS BROKEN DOWN BY INSTRUMENT STUDIED (1st or 2nd STUDY)

The results are more significant than they appear since all but one of the brass players was a man, and men, as was shown in Table 14 - 1, tend to be more introvert than women. Of the 5 sets of score used, it is only on Factor A that the men are more outgoing than women. For this factor the difference is negligible and non-significant. For the others, the women are the more sociable or extravert, though, again, some of the results are not significant.

Next to brass players, singers are the most extraverted group and their results will be considered in more detail later in the chapter. However, it is worth noting in passing that (over both sexes) singers and brass players have relatively high scores for N (shrewd, calculating) and string players relatively low scores. Since it is easier for the string player to 'hide in the crowd' and since the abilities of singers or brass players are often more exposed, it is not surprising that singers and brass players tend to be the more deliberate and calculating.

The findings here again serve to draw attention to the conceptual complexities associated with deciding what to expect a musician to be like. The singer is the only performer who cannot 'hide behind' an instrument. Instrumentalists can usually 'hide behind' their instrument and the written score. It is inappropriate to hypothesise about the personality of musicians without taking into account the nature of their roles or tasks, and this varies according to instrument.

Superego strength and instrument: Two factors on the 16 P.F., both of which have a bearing on the 2nd order factor superego strength, provide results which may distinguish wood wind players from others. From Table 14-4 it is clear that the main contribution to the significance of the results comes from wood wind players. Their low G and Q_3 scores indicate a disregard for rules, being uncontrolled and lax, disregarding obligations to others and following their own urges. However, the evidence here is rather shaky because the low superego strength which, it is suggested, may characterise the wood wind players is revealed only in those (10 people) for whom a wood wind instrument is the first choice. Results from those for whom a wood wind instrument is a second study but not the first study are no

no/

no different from results of other musicians. Evidence based on greater numbers is therefore needed before definite conclusions could be drawn on this. It might be noted in passing that the school data is not inconsistent with the students' results (Appendix 2 4) but differences in the school data are too small to be significant.

	Instrument is 1st study Mean score for		Instrument is 1st or 2nd study Mean score for	
	G	Q_3	G	Q_3
Brass	5.30	5.20	5.58	5.00
Singing	5.33	5.16	5.36	4.74
Piano	5.37	4.50	5.26	4.60
Strings	5.17	4.28	5.13	4.13
Wood wind	3.75	3.75	4.58	4.35
F ratio =	2.614	2.095	Not calculated	
Sig.	.05	Nearly .05		

TABLE 14 - 4 MEAN SCORES ON 'SUPEREGO STRENGTH' TRAITS BROKEN DOWN BY INSTRUMENT STUDIED

Differences between Pianists and Singers

The most commonly chosen studies are piano and singing. Because of this popularity, pianists and singers have a large influence in determining the average scores on the various traits under investigation.

In considering choices of study, the frequency of piano and singing as a combination was striking. All who had studied singing as 1st or 2nd subject had piano as their other subject. There were, however, a small number who had studied piano and an instrument from another group.

From the data gathered from the College students, the most extravert women were singers and the least were pianists. However, men who were singers were below (the male) average for extraversion. This suggested the hypothesis that extravert women become singers rather than pianists, whereas extravert men become pianists rather than singers.

Using the full results, a comparison was therefore carried out of those whose first study was piano and second study singing, and those whose first study was singing and second study piano. In this comparison results of the two sexes were treated separately so that the influence of sex could be observed.

	'Pianists'			'Singers'			t	Sig
	Men	Women	Both Sexes	Men	Women	Both Sexes		
Extraversion (E.P.I.)	10.05	12.10	11.61	10.39	12.77	12.10	.58	N.S.
Factor A	5.47	5.15	5.22	6.80	5.88	6.09	2.53	.01
H	4.79	5.39	5.25	5.50	6.33	6.14	2.46	.01
Q_2	6.00	6.19	6.15	5.70	5.79	5.76	1.09	N.S.

TABLE 14 - 5 MEAN SCORES ON EXTRAVERSION TRAITS FOR 'PIANISTS' AND 'SINGERS': BROKEN DOWN BY SEX

With both men and women, those who were primarily singers were more extravert than those who were primarily pianists. With extraversion measured in the E.P.I. the magnitude of the differences was negligibly small. However, the relevant 16 P.F. factors, possibly because they provide a more detailed picture, are more informative. Factors A, H and Q_2 all deal with different aspects of sociability which in turn is but one aspect of Eysenck's extraversion. On all of these, 'singers'*, no matter which sex, were more sociable (extravert). On Factors A and H this was statistically significant at the .01 level.

*For convenience, the following convention is being used for labelling the two groups: 'singers' are those for whom singing is their first study and piano their second study; 'pianists' are those with piano their first study and singing their second study.

Factor F (surg ency) contributes to Exvia, Cattell's 2nd order factor which is equivalent to Eysenck's extraversion. It is, however, more akin to "impulsiveness", an aspect of extraversion, than to the "sociability" aspect. Here the pattern differs.

	Men		Women	
	'Pianists'	'Singers'	'Pianists'	'Singers'
Factor F	7.90	7.80	6.45	7.00

TABLE 14 - 6 MEAN SCORES FOR 'PIANISTS' AND 'SINGERS' ON FACTOR F: BROKEN DOWN BY SEX

The women 'singers' are clearly more surgent than women 'pianists'. With the men the difference is quite negligible, although the tendency is for 'pianists' to be the more surgent.

Because with Factor F the differences are small, it is unreasonable to believe that the data supports the hypothesis made earlier (that extravert men become pianists and extravert women singers), though it does reveal that it was not too implausible.

	'Pianists'			'Singers'			t	Sig
	Men	Women	Both Sexes	Men	Women	Both Sexes		
Neuroticism (E.P.I.)	10.95	14.08	13.33	10.77	13.74	12.92	.43	N.S.
Factor O	6.16	5.58	5.72	5.80	4.67	4.93	2.03	.05
Factor Q_3	4.26	4.60	4.52	5.20	5.15	5.16	1.78	N.S.
Factor C	5.21	5.26		4.60	5.27			
Factor L	6.21	5.92		5.80	6.30			

On Neuroticism and Factors L and O, high scores are less stable.
On Factors C and Q_3, low scores are less stable.

TABLE 14 - 7 MEAN SCORES FOR 'PIANISTS' AND 'SINGERS' ON A VARIETY OF TRAITS: BROKEN DOWN BY SEX

Of some interest too are the various factors associated with anxiety and neuroticism. On the neuroticism scale of the E.P.I. and on Factors O (guilt proneness) and Q_3 (self-sentiment integration) of the 16 P.F., 'pianists' are the more anxious or neurotic and the 'singers' seem to have more self-control, persistence and foresight. Statistical significance (at the .05 level) is reached with Factor O and is approached with Q_3.

Although the evidence here is slight, it does seem possible that study of the piano may provide a "safety net" for some of the less well adjusted students, whereas the more stable deliberately make their choices. The results of Factor N tend to support this hypothesis, and this all amplifies the suggestion (made on p.258) that men more deliberately must choose to be musicians.

	'Pianists'		'Singers'	
	Men	Women	Men	Women
Factor N (naive v shrewd)	5.42	4.42	6.50	4.82

TABLE 14 - 8 MEAN SCORES OF 'PIANISTS' AND 'SINGERS' ON FACTOR N - BROKEN DOWN BY SEX

'Singers' are less naive and natural than 'pianists': they are more aware and more insightful (statistically the difference does not reach significance - t = 1.73). With men the difference between pianists and singers is much greater.

A parallel finding is made with Factor M (practical, down-to-earth v bohemian). Pianists are considerably more bohemian, autistic and impractical than singers and the difference is significant at the .01 level (Table 14 - 9).

Table 14 - 9/

	'Pianists'			'Singers'			t	Sig
	Men	Women	Both Sexes	Men	Women	Both Sexes		
Factor M	6.26	6.56	6.49	5.90	5.49	5.58	2.56	.01

TABLE 14 - 9 MEAN SCORES OF 'PIANISTS' AND 'SINGERS' ON FACTOR M - BROKEN DOWN BY SEX

The situation is possibly rather more confused than indicated so far. On some factors - neuroticism on the E.P.I., egostrength on the 16 P.F. - men are the more stable and better balanced. Yet on Factor O, the women have the 'better' scores and it is the men who are more 'guilt prone'. Further, among 'pianists' men are less suspicious, jealous (Factor L) but among women 'singers' women fare better. The problem with the data being considered is that in many instances non-significant trends are being studied. Nonetheless, the evidence does make one alert to the danger of assuming that the pattern of findings with related factors must be similar.

CHAPTER 15

PULLING THE THREADS TOGETHER

A Theoretical Discussion

A great deal of information about a great variety of topics has been presented - and much of it seems to be highly specific. It is therefore necessary to attempt some kind of integration. This has been started in Chapter 9, where an initial attempt was made to systematise our conceptualisation of music appreciation, but these ideas need further development. Just as important is the task of coping with the evidence relating personality to music appreciation since this is at present disorganised and requires to be placed in an appropriate context. Throughout, it has been stressed that the relationship between personality and music appreciation could only be meaningfully studied if our ideas concerning the nature of music appreciation were first clarified. It is, therefore, quite appropriate that in this chapter a reconsideration of the concept of music appreciation provides a starting point for discussion of personality in relation to music appreciation.

Because of the lack of agreement as to what constitutes music appreciation, it was posited that music appreciation should be treated as a hypothetical construct of a disjunctive nature and that many different behaviours could provide evidence for music appreciation. This, we have argued, is a perfectly valid line to adopt, but it is not particularly helpful unless there is some independent evidence to justify the hypothetical disjunctive concept - music appreciation. Further evidence was forthcoming. From the school pupils' results it was found that the musically appreciative tended to share certain personality characteristics and it seemed to matter but little what aspect of musical interest or ability justified their being considered 'musically appreciative'. This enabled us to discuss the 'musical personality' or the 'musically appreciative personality'* as being being/

*For convenience, we shall tend to use only the former of these synonymous terms.

being that which reveals itself in many different forms of musically appreciative behaviours.

However, there are two findings that must now be taken into account which force us to modify our views. First, the regression analyses from the school pupils' results provided clear cut evidence that 'personality' as measured by the personality questionnaires accounted for (correlated with) musical appreciation to a relatively small extent. Second, variations (other than random ones) from the basic musical personality are to be found between different groups of the musical: this is true with both school pupils and those training or trained as musicians. Let us take these points in more detail.

From the regression analysis it is clear that personality structure, although related to musical appreciativeness, fails to account to any great extent for musicality. (Nonetheless, it is important to do justice to our data: our multiple correlation coefficients <u>are</u> relatively high compared to those in other studies and the personality variables we have shown to be of relevance cannot be dismissed too lightly. Furthermore, 'personality' in this discussion, is what is measured by Eysenck's and Cattell's tests. It is conceivable that the relationship between personality to music appreciation could be closer if a broader definition of 'personality' were adopted.) However, the seeming failure of the personality variables to account for musicality does not necessarily make the concept of the 'musical personality', as expressed above, any less valid. All that is necessary is to recognise that the appropriate personality structure helps to determine musicality but that there may be other independent influences (such as home background) of considerable magnitude. A consequence of this is that there may be some people who lack the 'musical personality' but who do appreciate music (in the sense we have described earlier using a broad conceptualisation of the term) and equally others who have the 'musical personality' but who are not musically appreciative.

It is disappointing to have to accept the conclusion that the 'musical personality' may be but one of several potent influences which determine how musical an individual is. However this is precisely the kind of finding that has been obtained in other fields of the Psychology of Personality. Yet we have been able to provide some documentation of those personality characteristics which are possibly of greatest importance in the study of the musical.

It should be noted that we have modified our concept of the musical personality through relegating it to a lower level of importance than first ascribed to it - a change which incidentally weakens our conceptualisation of music appreciation. Further modifications which may strengthen our conceptualisation are necessary when one recognises the fact of systematically and regularly occurring personality differences between different groups. Thus (for example) men and women music students and musicians differ; there are differences between those in different sections of the orchestra; and even musically appreciative school pupils differ from adult musicians. To account for such variations, it is not sufficient to argue that the basic 'musically appreciative personality' may be less important than has hitherto been suggested and to suggest that external social influences, including home background, are more important.

We suggest therefore a reformulation of the concept of the musical personality. We suggest that personality traits can be seen as falling into one of two categories or serving one of two functions.

There are, firstly, those traits which are central to musicality in any forms which will be found in any group of musical individuals, such as intelligence and emotional sensitivity*. Such traits, we suggest, are essential for musical appreciation and lack of them is relatively difficult, if not impossible, to compensate for: they are the necessary, but not sufficient, conditions for musical appreciation. These traits (the lowest common denomenator of the lists provided in earlier chapters) can now, quite properly, be considered as those that constitute the musical personality. Their function is to provide or be the fundamental source of musicality. But the way in which this latent potential manifests itself in some form of musical activity or interest - the surface traits - depends also upon a variety of social factors (home background, opportunity, etc.) and upon other personality characteristics. These other characteristics constitute the second category of personality traits and although they are not the essence of musicality, they are important in determining in what direction ones musicality will be directed. We can exemplify this point,

point/

---

*We shall discuss these traits later on in this Chapter.

point, by reference to a trait that clearly falls into the second category, extraversion. Extraversion is certainly not an essential or integral part of the musically appreciative personality, yet extraverts are more likely to be performers whereas introverts are more likely to enjoy listening to music. The musical activities one engages in and the musical interests one develops are, we contend, determined by the joint effect of the many secondary personality traits and of the social pressures and opportunities interacting with the basic musically appreciative personality traits. It will be noticed that our formulation of a 'model' of the musical personality accords with some of the views of psychodynamic writers as well as with those workers such as Cattell. We distinguish the latent from the manifest (source traits from surface traits) and we stress that the interactions between the different aspects of personality and the interactions with the external social environment are of paramount importance.

Two brief comments on our model seem pertinent.

First; the interactions of the many variables, i.e. the basic musical personality traits, the secondary personality traits and the social factors, may be highly complex and it is arguable that the nomothetic approach which we have adopted could be less appropriate than an ideographic approach. It would certainly not be simple and, in all but a few situations, it might not be profitable, to unravel the complexities of the interactions. On the other hand, it may be useful to consider why a given person is, or is not, musical and if this helped that individual to understand his own nature better, it might also help him to plan for his future better. However, no two individuals would share the same background of experience and the same personality characteristics.

Second; it seems probable that factors outwith the individual, in other words social factors including those associated with the home, may be very important in the second function of determining the way in which the musical personality finds expression. Since this research has not been about the <u>social</u> psychology of music, we have hardly touched upon social factors and it would not be proper to suggest which ones might be most important. However, we do feel it important to stress that social factors ought not to be studied in isolation. Since the interaction between social influences and personality characteristics is important in determining how one appreciates music, we suggest that the investigation of social factors ought to take into account personality factors especially

especially/

especially the seemingly unimportant ones that fell into our second category. It might be noted that this point is exemplified in our findings concerning taste for pop music for it was suggested that the social pressures for young people to adopt a taste for such music is most powerful on those whose personality is characterised by lower super-ego strength.

Earlier in this chapter we reasserted the point that we have in practice adopted an operational definition of personality as that which is measured by Eysenck or Cattell's tests. It is possible to broaden our conceptualisation of personality to make it accord better with the common usages of the word without any damage to the two-level structure of personality variables which we have developed as part of our 'model' of music appreciation and the 'musically appreciative personality'.

We have refrained from suggesting that 'engaging in musical behaviours' is a personality trait in its own right. If the evidence for being musically appreciative is having some musical skill or engaging in some musical activity or having some musical interest and if 'engaging in such musical behaviours' is only explicable in terms of a hypothetical personality trait, "musical appreciativeness", then nothing is explained: the whole thing is tautologous. It was indeed just this that provided the justification for looking at independent personality variables by using published standardised tests. However, ample evidence has been presented to show that the 'musical behaviours' we have studied are explicable in terms of independently selected personality traits and of social factors. It is therefore not improper to consider the various musical behaviours as exemplars of being musically appreciative (the argument of Chapter 9) and further to consider 'being musical' or 'musical appreciativeness' as a personality trait in its own right, though one which is not independent of other traits*. It might be noted that this broader view of personality does, in no way, affect our earlier discussion - indeed it is implicit in it. Similarly, the inclusion of any other personality traits would be perfectly acceptable and would not invalidate the earlier line of reasoning at all.

---

*There is no inconsistency in this. Cattell, and many others, accept correlated personality factors because this makes them psychologically more meaningful.

So far in this chapter we have reviewed our ideas about the relationship between music appreciation and personality and to account for our findings we have revised our ideas about the nature of the 'musically appreciative personality'. One further modification to our earlier thinking, this time specifically concerning the concept of music appreciation, may further help to 'tighten up' our conceptual framework. This is to restrict the concept of music appreciation by limiting 'music' to 'serious or classical music'. The reason this is suggested derives from the finding that with both the "taste data" and the data from the semantic differential ratings, the correlation coefficients measuring the strength of the relationship between liking for, or evaluation of, music and the personality variables became progressively closer to zero as one moved from serious or classical music, through folk and light music, to pop music.

(This is, of course, in accord with what one might intuitively suspect, that the more popular styles of music appeal to a greater range of personality types because they are specifically designed to. While this seems virtually a truism, what appears to be intuitively obvious is not necessarily always found in practice.) It will be noted that our limitation here has the virtue of making music appreciation into a concept for which there must be a more clearly recognisable 'musical personality' whereas if each one of the whole range of styles from 'pop' to 'classical music' is considered to be a valid form of music, then one cannot argue so strongly that all musically appreciative behaviours reflect to any considerable extent a recognisable 'musical personality'. Our argument may be convenient for helping to organise a conceptual framework for music appreciation, but it could be a dangerous one since it is made without reference to the many and various criteria that trained musicians might advocate.

There is a problem here. On the one hand (in Parts I and II) we have urged that in defining music and music appreciation it is inappropriate to be too restrictive and this was backed up by reference to musicians of undeniable talent and professionalism who enjoy catholic tastes in music. On the other hand, we are suggesting that a narrow definition of music makes the concept of a 'musical personality' much more tenable and that this is of value in helping to provide a reasonable conceptualisation of 'music appreciation'.

Though it may seem ironic, we strongly believe now that the concept of the 'musical personality', as the foundation for musical activities or interests, is only really appropriate when music is limited to serious/classical music. We accept the psychological reasoning which is implicit in the argument that a taste for pop music or attendance at pop concerts is determined in large measure by external social forces and only to a slight extent by the nature of an individual's personality. However, acceptance of this line of reasoning may not be too inappropriate in view of the fact that many musicians would restrict the meaning of the word music in just the way we are doing. Yet the narrow views of some musicians might (uncharitably?) be construed as narrow-mindedness.

We strongly believe in the desirability of limitations on the meaning of music - yet we reach this position with some reluctance. The wheel has come full circle: the definition of music was broadened out from a traditional and relatively narrow one, only to be restricted at this stage. The lost advantages of the intermediate position must be offset against the gained advantages in our final position and it is difficult to assess objectively the relative merits and demerits of the two positions.

A final comment on this issue seems necessary to put it into a proper perspective. It is that we have been discussing a purely semantic problem. It does not invalidate the model of music appreciation or of the musical personality we have developed. Instead of one broad category 'music', we may have two, a narrow category 'music' (i.e. serious/classical music) and a broader category which, for want of a better term*, we may call 'quasi-music' (i.e. all music other than serious/classical music). To parallel 'music appreciation' there could be 'quasi-music appreciation' and the notion of many forms of appreciative behaviour is equally appropriate to both. The critical difference lies in the level of importance of the musical personality for determining appreciative behaviours. We believe on the basis of the evidence we have produced that only for 'music appreciation' and not for 'quasi-music appreciation', is this importance sufficiently great to be justified. Furthermore, we doubt the existence of a 'quasi-musical personality'. In our data there seem to be no common personality correlates of different 'quasi-musical' behaviours. This is not to deny the

the/

*The distinction is meaningful: the neologism we have coined deserves to be forgotten as soon as its immediate purpose has been served.

the importance of personality factors in relation to appreciation of 'quasi-music'. But we are stressing the social influences and their interactions with a great variety of personality factors - and these personality factors are not especially those that constitute the 'musical personality'.

Personality as it relates to Music Appreciation

The 'musical personality': In the previous section the concept of the musical personality was redefined and limited to include only those personality traits which are to be found in any group of individuals who have skills or abilities or interests connected with serious/classical music; traits which are assumed to have importance in being the source power that manifests itself in some form of musical behaviour.

To discover what these traits are, the findings concerning both the school pupils and the music students and musicians have been scrutinised to find out the extent of any agreement concerning the personality profile of musicians and musical pupils.

Intelligence stands out clearly as a factor of major importance - a finding upon which we have already laid some stress. Emotional sensitivity, too, is undoubtedly a prerequisite for musicality: the findings are unambiguous that musicians and musical school pupils tend to score high on Cattell's Factor I ('Presmia ') and the results from other factors confirm this. There are, however, no further personality traits where there is agreement between the two groups so that the traits which constitute the 'musical personality' seem quite simply to be intelligence and emotional sensitivity. That these are the basic personality characteristics of the musical can be no surprise. The reviews of the literature about music appreciation revealed that both the cognitive analysis of music and emotional response to music typified the person who appreciates music. Furthermore, previous research has pinpointed these traits. What is surprising is that no other personality variable emerges from our analyses as part of the basic 'musical personality'. However one further variable does seem to be basic, and that is coming from a musical home. The very great importance of this

this/

this for our school pupils has already been discussed. And although we have not documented equivalent evidence for those training or trained as musicians, such evidence as we have (and it is somewhat fragmentary) together with the evidence of other workers indicates that a musical background is a powerful influence.

It is the differences, rather than the similarities, between our two groups of subjects that are most noteworthy. Thus musical school pupils tend to be field-dependent, submissive, obedient, accommodating, sociable and group dependent whereas the musicians tended to be the opposite, independent, assertive, free-thinking and 'loners'. It is conceivable that a number of the more independent-minded school pupils direct their energies into Art or other aesthetic pursuits. Yet, with music students, especially men, there is an independence of thought and action not found with the school pupils which may possibly be a positive asset considering the nature of their training and the public image of musicians.

Explanations for the various differences between the two groups could be sought in terms of the different social climates of school and music academy, or in terms of the difference between a pupil's interest and a student commitment to music or in terms of the different musical experiences the two groups will wish or will have to enjoy, etc. etc.

No matter what the explanations may be, it is of paramount importance to recognise that although factors such as independence or sociability cannot be included as traits typifying the 'musical personality', they are still of very considerable importance as 'second-category' personality factors. Indeed their role as such factors is implicit in the kind of explanations about which we have hypothesised. In these the 'personality - social' interaction is clearly a central feature. By any standard the importance or significance of the second category of personality traits matches that of the more basic musical personality traits.

One possibility which we have not so far discussed and to which we have only referred obliquely is that the basic personality traits of the musically appreciative person are not simply the source from which specifically musical behaviours develop. The published findings concerning artists could be interpreted to provide a similar or identical 'art appreciative personality'. It is possible that what we have identified is a

a/

a more general 'aesthetic personality' and that the different expressions of this, in interest in varying Art forms, result from the influence of the home and other social agencies, such as the school, interacting with the secondary personality traits. It might be thought that what distinguishes the person whose interests develop in Art rather than in Music is lack of musical ability. For such an argument, we would hypothesise that musical ability be seen as a characteristic of the 'musical personality' along with intelligence and emotional sensitivity. However, throughout this study we have considered the many forms of musical appreciation to be the dependent variables in this study and the personality factors to be the independent variables. To make music ability (say - as tested on the Wing Tests) into an aspect of the 'musical personality' is to change its status from dependent to independent variable by a quite arbitrary decision. Our factor analytic results suggest that test ability is but one of many aspects of appreciation and so to single it out in this way would be quite improper.

Nonetheless in the regression analysis of orchestral playing, test ability was introduced along with personality variables and this was found to be a profitable decision. In the light of such a result, and in view of the strength of the test factors, it may not be unreasonable (though it does rather go beyond our results) to think of the basic 'musical personality' as being associated with i) intelligence ii) emotional sensitivity iii) musical ability and iv) a musical home background.

The 'secondary personality traits' and music appreciation: These traits function to direct musicality into any one of many possible directions - but they do this interacting with sex, home background and, in the broadest sense, social factors. The form of music appreciation revealed in any one individual's behaviour is determined by the nature of his personality traits and by the various interactions. The main point to be kept in mind here is that the relationships of the several personality and/or social variables with different aspects of music appreciation tend to be specific: what is general is accounted for in the "musical personality" (providing a musical home background can be included with the personality traits). However, this does not make these relationships unimportant and they must certainly not be ignored. Chapters 11 and 14 describe and

and/

and discuss the variations from the basic relationships between music appreciation and personality and thus deal with the secondary personality traits.

Two types of relationship between music appreciation and personality/social variables have been described.

1. The personality correlates of each of a number of aspects of music appreciation for different groups of people, where the grouping is according to 'social' criteria such as
   - (i) sex
   - (ii) whether at school or at Academy or College.
2. Comparisons between the personalities of related groups of the musically appreciative. Criteria used have been (inter alia)
   - (i) performer v listener
   - (ii) instrument studied
   - (iii) preferred style of music.

With regard to the first, it will be recognised that since what is being considered is primarily about social factors, our coverage has inevitably been rather limited and lacking in sophistication. Further investigations could take into account a greater number of (non-musical) criteria such as age or social class though they might benefit, as we have suggested above, from careful planning to take into account the structural relationships between musical appreciation, personality and social factors. However, more, or different, aspects of music appreciation could be taken into account.

The second type of relationship is characterised by focusing primarily on musical criteria and is narrower in scope. Here we have been rather more thorough and have produced some interesting results, including what we believe may be our most significant - those relating to musical taste.

Some Implications of the Findings for Education

We have just indicated our belief that we have in our analysis of the taste data, findings of some originality and merit. The factorial structure of taste is clear cut, it does not disagree with everyday (possibly

possibly/

(possibly unsystematic) observation and it makes musical sense. Furthermore the personality correlates have a patterning of such significance that much of our theoretical discussion, in the first part of this chapter, rests on it. The validity of the findings seems to be confirmed by the fact that the 'taste data' from the questionnaire and the data from the semantic differential ratings of music provide essentially the same patterns.

There can be little doubt that the findings are as revealing about the nature of music (as it is experienced) as it is about differences in musical taste (per se). There seems to be a real distinction between music which is composed with the deliberate aim of appealing to the listening public and 'pure music' which is free from commercial constraints. Unless our hypothesising about the nature of 'the musical personality' is totally lacking in validity, one must draw the conclusion that the purer the music, the fewer will be the number of people who are equipped, by virtue of the personalities, to appreciate it. This is not to deny that commercial music can have artistic merit: it is merely to suggest that the likelihood of high artistic merit drops with increasing concern over the popular appeal of a work.

Let it be noted that in discussing 'the musical personality' it was not suggested that there are thresholds in intelligence, or in emotional sensitivity, or even in the musicalness of ones home, which are necessary for musical appreciation. Indeed, we are not dealing with an "all-or-nothing" concept. Consequently, since the personality/social environment interaction seems important for musical appreciation, one might hope that a deliberate policy of intervention through a properly controlled educational system could lead to a greater number of people being able to appreciate music.

The sequence in the types or styles of music (pp. 207, 231) reveals an order of difficulty and may provide one sequence for weaning a person from an uncritical liking for 'pop' to a keener appreciation of purer classical music.

Implicit above is the belief that a rich musical environment in school, providing it is not 'above the head' of the naive listener, can to some extent compensate for a poor musical environment in the home. But what compensates for lack of intelligence or of musical ability or of emotional sensitivity? Are not these personality traits largely determined by heredity? While it is easy to reply that the heredity contribution is not total and that good teaching can help one to discern the structure of music and make one more sensitive, one must recognise that education of the young

is/

is concerned with many subjects other than music and that the priority given to music may be so slight that compensation for a non-musical personality may, in practice, be negligible.

Not only from the analysis of musical taste and its personality correlates, but also from the results of the full factor analysis (Chapter 8) came the implication that in teaching there is great need for a broad based curriculum. We have agreed that music appreciation may reveal itself in any one of many ways depending on social circumstances and secondary personality traits. Whether it can reveal itself in the school situation will depend upon how flexible music teaching in schools can be. One could mount an attack against private music tuition at this point, for too often it is concerned with narrow aims, e.g. the development of the technical skills of performing on a given instrument. Yet to do so would be misguided. If private tuition is seen to complement rather than be a substitute for school music tuition, it provides a further outlet for the potentially musical. Of considerably greater importance is for all music teachers, for the children they teach, and for their parents, to recognise the limitations in any one aspect of the music education.

Related to the need for broadening the scope of music teaching is an increasing need to assess in what ways an individual may be musical. Formal tests can provide one method of making such assessments. While the correlation between the results of different tests is often quite high, the variability cannot be ignored. If unreliability is not to blame, then there are a variety of specific skills being tested which may, or may not, be of some significance. Although the development of tests is currently unfashionable in educational psychology we believe that more test development in music, if it is coupled with thorough investigations of what the tests do in fact measure, may prove beneficial. The development of our test of ability to recognise composers by their style and the suggestions for its further development and investigation are in accord with our views here.

There seems however to be a curious paradox here. Tests tend to focus on the intellectual skills required for listening to music, whereas much teaching focuses on how the individual experiences the music he is hearing. Two developments are necessary to deal with this situation. First, the cognitive aspects should receive more attention from those teachers who undervalue it. The questionnaires to those training to be music teachers

teachers/

teachers provided disturbing evidence that for many this aspect of teaching may be relatively unimportant. Second, assessment techniques should be developed in the affective domain with the same enthusiasm as they have been in the cognitive domain. Only if this takes place will there be assessment procedures valid for a great variety of purposes. It could be seen as a failure of those concerned with the music test technology that the tests are valid for such a limited number of purposes - a point which was evident in the factor analysis of the school pupils' data.

There are implications in our findings for some limited use of personality testing in selection for music courses, both at school level and in higher education. We see two uses. The obvious one is in selection of those fitted for a music course and here the personality test results would have to supplement other pieces of information. The use of personality test results here would be difficult since, ideally one would not only look for the basic musical personality, but one would also consider 'secondary' personality variables. The second use would be to provide some way of checking on those who, in training, are considered to be temperamentally unsuited to being a musician. Here the range of tolerable personalities becomes more important than the personality of the 'typical musician'. Both these are valid uses - but not ones that would necessarily produce pertinent information on a large proportion of those tested. However, this is true with all testing: the number of people for whom the test results have special significance may be quite low, and this should not be seen as a failure of the test to serve the purpose for which it was designed.

A Final Concluding Comment

The relationships between personality traits and expressions of musicality have not been widely researched and the range of possible methods of doing so is extremely wide. We believe that the methodology we have adopted has been fruitful in that positive results have emerged and in that some estimate of the importance of personality could be made.

It is a cliché to say that further research is necessary and we believe that further research using the same simple design that we have used would not prove valuable.

If we have achieved anything it is that we have cleared the ground. We have provided one 'model' of musical appreciation and have related musical appreciation to personality traits and to social factors; we have indicated where musicality is one thing and where there are a great number of specific problems. If further research into the psychology of music is to take account of personality traits using Cattell's, or even Eysenck's, personality model then we have indicated the kind of factors and interactions that may be significant.

We are reminded of some of those musical works left uncompleted at the death of their composers. The original composer starting from minimal material, produced a framework or structure, filled in some of the detail and indicated how further development might take place. But only a later composer transformed the half-formed work so as to make a fully satisfying whole. At the present stage we feel we have presented a work that is not wholly satisfying. It is not that there is something seriously wrong with it but that it is incomplete, that the useful findings and implications are few. Perhaps if the basic structure is sound it may in a later stage receive the further attention that will make it more generally acceptable and useful. But, unlike music, in research there is never a point where one can stop and feel satisfied the work is finally complete.

A P P E N D I C E S

1. Personality Profile of Music Performers and Therapists.
2. The sample of the Music Academy students - broken down by year of study and course.
3. The questionnaire given to musicians enquiring into their concept of music appreciation, together with summary of results.
4. Test of Recognition of composer style - the first 30 item version.
5. Test of Recognition of composer style - the s econd 30 item version.
6. Item analyses on the first 30 item version of the test of recognition of composer style.
7. Item analyses based on the 60 items in both versions of the test of recognition of composer style.
8. Frequency distributions for the several versions of the test of recognition of composer style.
9. The final 26 item version of the test of recognition of composer style.
10. Administration of the semantic differential.
11. Means and standard deviations for semantic differential ratings of music.
12. Factor loadings obtained by a factor analysis of all the semantic differential ratings of music.
13. Results of the separate factor analyses for semantic differential ratings of each piece of music.
14. Questionnaire concerning school pupils' musical experience, interests and home background.
15. List of the variables used in the factor analyses of the school pupils' music test results and questionnaire data.
16. Correlation matrix for the music test results and the questionnaire data of the school pupils.
17. Factor analyses of all the music data from the school pupils.
18. Factor loadings from the factor analysis of the school data using Rao's factorisation - before rotation.

19/

Appendices - cont'd

APPENDIX 1

Personality Profile of Music Performers and Therapists

The following profiles are all based on the work of Shatin et al but because of the way the results have been published, the figures in the 3rd column have been calculated from those in the first two columns.

	Performers and Therapists* (N = 54)	Therapists**	Performers
A	5.0	5.1	5.0
B	6.7	8.0	6.0
C	5.3	5.5	5.2
E	5.9	5.7	6.0
F	5.9	5.4	6.1
G	6.1	6.5	5.9
H	6.6	6.3	6.8
I	7.1	7.2	7.1
L	4.8	4.4	5.0
M	6.2	6.3	6.2
N	4.8	5.0	4.7
O	4.3	4.2	4.3
Q_1	6.1	6.1	6.1
Q_2	6.7	6.7	6.7
Q_3	6.1	6.4	6.0
Q_4	5.0	4.9	5.1
QI	5.7		
QII	4.7		
QIII	5.5		
QIV	6.7		

*Source of data: Cattell et al (1970)

**Source of data: Shatin et al (1968)

APPENDIX 2

The Sample of the Music Academy Students - broken down by year of study and Course

Year of Study	Number of Students enrolled in Academy	Number of Students tested	Percentage tested
Year II	57	35	61
III	67	39	58
III+	15	8	53
Total	139	82	59

Course of Study	Number of Students enrolled	Number of Students tested	Percentage tested
Dip.Mus.Ed.	41	27	66
D.R.S.A.M.	83	44	53
D.R.S.A.M. (Wind Teacher)	15	11	73

39% of the Academy students were men. This is representative of the proportions in the Academy: in session 1973 - 74,36% of the students were men. However, it should be noted that the balance of the sexes varies according to the course of study. This is true both of our sample and of the students at the Academy.

At Jordanhill College, the other source of musicians, 44% of the music students we used were men.

APPENDIX 3

The Questionnaire given to Musicians Enquiring into their Concept of Music Appreciation

In this appendix is presented the full questionnaire, together with its preamble and instructions. This appendix also provides a complete record of the responses given since. The frequency of the various responses to each item are entered in the appropriate columns. It might be noted that not every item has been answered by every person and consequently the totals for each item differ.

"WHAT IS MUSIC APPRECIATION?"

'Musical Appreciation' is a general term that has been used when describing the skills shown in listening to music. Unfortunately musicians seem not to agree completely upon the meaning of this term - and when sociologists and psychologists also become involved in attempting to define it, confusion is worse confounded. Normally this does not matter greatly, for there are few occasions when the musician needs a precise definition and few sociologists and psychologists are interested in music, except for recreation! Besides, those who use the term do usually know what they mean by it and will explain it if the need arises.

However, I am interested in what different musicians really mean by 'music appreciation', i.e. in seeing to what extent there is a consensus of opinion and in seeing where any differences of opinion do lie. This must not be taken to imply criticism if there is no agreement: it would be surprising if there was. Rather it would confirm what is, I believe, a commonsense viewpoint, that is that 'music appreciation' is such a general and vague term that it is not meaningful to use it where precision and clarity of expression are required.

Below you will find a number of statements, most of which have been drawn from books written by musicians and music teachers. They all deal, directly or indirectly, with the problem of defining 'music appreciation' and focus on the intellectual tasks of listening with appreciation and on the (emotional?) responses made which indicate appreciation.

Please mark the extent to which you agree, or disagree, with each of the statements by putting a tick in the appropriate box on the righthandside of the page. There is a five point scale, 1 means 'strong agreement', 2 means 'agreement', 3 means 'uncertain', 4 means 'disagreement', and 5 means 'strong disagreement'. Where a statement is long and one phrase in it has been underlined, indicate the extent of your agreement with the underlined point only: the rest of the statement merely puts the crucial underlined part in context. Try to decide on each statement exactly as it is written. If after doing this, you wish to add comments on any of the statements, or more generally on the topic of defining musical appreciation, I should be most grateful for them.

		Strong Agree-ment 1	Agree-ment 2	Uncer-tain 3	Dis-agree-ment 4	Strong Dis-agree-ment 5
1.	Music is just as much a language as English with a notation, a grammar, and a literature of its own. Every great melody has got a meaning: the great melodies are like the great lines of Shakespeare, or of Milton, or of Virgil, as full of meaning and significance for those who have ears to hear them.	13	12	2	6	-
2.	Every great melody has got a meaning, if only we could find it.	5	6	3	14	1
2S.	Every great melody has got a sign-ificance, if only we could find it.	7	13	1	2	1
3.	Some, though not all, melodies have meaning.	4	14	2	8	-
3S.	Some, though not all, melodies have sign-ificance.	3	13	5	8	1
4.	The meaning in a piece of music should be the same for all listeners.	-	-	1	11	18
4S.	The significance in a piece of music should be the same for all listeners.	-	3	1	8	8
5.	The meaning in a piece of music should be the same at all times for any one person	-	2	1	16	11
5S.	The significance in a piece of music should be the same at all times for any one person.	-	2	1	8	9

6/

		Strong Agree-ment 1	Agree-ment 2	Uncer-tain 3	Dis-agree-ment 4	Strong Dis-agree-ment 5
6.	The meaning of music is discovered when we understand its structure and form. (This is an intell-ectual process.)	-	7	2	11	8
6S.	The significance of music is discovered when we understand its structure and form. (This is an intellectual process.)	-	9	3	5	4
7.	The meaning of music lies in the emotions (feelings) it evokes.	5	14	4	5	1
7S.	The significance of music lies in the emotions (feelings) it evokes.	1	10	4	3	2
8.	The meaning of music lies in the emotions it evokes. To find the meaning we do a kind of translation when we know which emotions correspond with which particular sound patterns.	1	8	8	11	5
9.	Simply to enjoy the sounds of music, is to appreciate it. Enjoyment is suff-icient.	2	11	4	10	6
10.	"Although 'liking' does not constitute "appreciation", it is nevertheless necessary that appreciation should include liking."	3	8	1	13	8
11.	When an appreciative listener derives satisfaction from understanding the form of a composit-ion and/or the tech-niques used by its composer, he exper-iences an intense feeling of pleasure	5	17	2	3	1

		Strong Agree-ment	Agree-ment	Uncer-tain	Dis-agree-ment	Strong Dis-agree-ment
		1	2	3	4	5
12.	If the effect of music is not wholly pleasurable, then the listener has failed to appreciate the music.	-	-	1	18	14
13.	When music heard by school children is accompanied by either emotional satisfaction or intellectual under-standing of it, it has been appreciated.	4	21	2	5	1
14.	Some pieces of music can be appreciated even when they evoke little or no emotion in the listener.	-	27	2	3	1
15.	Appreciation of music lies in the listener exper-iencing the same emotion as the composer wished to express, no matter whether it is pleasure, awe, distress, horror etc.	-	12	3	13	5
16.	It is the effect that music produces that is important, not an understanding of how that effect is achieved.	2	19	2	8	1
17.	"Music is not the cause or cure of emotions, but their logical expression."	7	17	3	4	2

18/

		Strong Agree-ment	Agree-ment	Uncer-tain	Dis-agree-ment	Strong Dis-agree-ment
		1	2	3	4	5
18.	Music does not arouse normal emotions, such as joy, fear, anger, sadness etc., but it may possibly describe or illuminate these emotions. This is because the appreciative listener can recognise a simil-arity between the forms of music and the emotions.	3	10	1	11	4
19.	"Appreciation of music is pure spontaneous pleasure unmixed with intell-ectual effort."	1	3	4	18	7
20.	It is more important for children at school to be aroused to strong feelings by music than to have an intellectual under-standing of it.	6	16	4	6	1
21.	Appreciation cannot occur without under-standing of the form, and other technical aspects, of the music.	1	6	2	17	7
22.	Appreciation of music implies both under-standing the music and being stirred emotionally by it.	8	14	2	8	1
23.	<u>When listening to music no one should constantly be in an analytic frame of mind</u>, (unless he is a professional music critic), if he is to appreciate it fully.	6	20	1	5	1

		Strong Agree-ment 1	Agree-ment 2	Uncer-tain 3	Dis-agree-ment 4	Strong Dis-agree-ment 5
24.	The expert musician is more capable of an intense emotional feeling when listening to music because of his deeper understanding of it.	2	4	2	18	7
25.	"Expert musicians by confining their attention to technique, tend to allow their critical acumen to deaden their emotional reactions."	6	22	2	2	1
26.	"Art - and this includes music - must reach the Feeling via the Understanding." Before you can be properly moved by music you must understand it.	2	4	2	18	7
27.	Great musicians, when composing, do adhere to certain sets of 'rules' and they do have certain recognisable stylistic devices, although the conventions adopted by different composers are not necessarily the same.	15	10	3	4	-
28.	Appreciation requires that the listener derives his satisfaction, through an understanding of the rules and conventions used by the composer.	1	11	2	15	2

29./

	Strong Agree-ment 1	Agree-ment 2	Uncer-tain 3	Dis-agree-ment 4	Strong Dis-agree-ment 5
29. "It is an insult to a man of Beethoven's genius to suppose that he spent his life in stringing tunes together and lavishing upon them all the resources of art with no object in view but that of delighting the ears of men with a concourse of sweet sounds."	15	10	3	4	-
30. "No, the value of Beethoven's music is a moral value."	-	8	11	9	1
31. The act of appreciation should include a consideration of the music's performance as well as of the composition itself.	5	22	2	4	-
32. Understanding the expressive aspects of performance is more important in appreciation than an understanding of the composition itself.	-	5	1	20	5
33. In appreciation, the essential task is to evaluate the quality of the music which is listened to.	2	11	5	13	1
34. Those who are ignorant of the times and culture in which a composer lived, cannot fully understand his music.	3	20	2	7	2

35/

		Strong Agree-ment 1	Agree-ment 2	Uncer-tain 3	Dis-agree-ment 4	Strong Dis-agree-ment 5
35.	Some knowledge of the history of music is helpful when listening to a piece of music.	7	25	-	1	-
36.	Being aware of the different colours and textures is more important than recognising the form and structure in a piece of music.	2	11	9	9	1
37.	Memory for melody and rhythm is essential for recognition of the form of a musical composition.	5	23	-	5	-
38.	An ability to remember the melodies and rhythms in a piece of music is not necessary for appreciating it.	4	20	2	6	1
39.	Basic musical abilities are needed before musical appreciation is possible.	2	9	4	14	3

APPENDIX 4

Test of Recognition of Composer Style - The first 30 item version

Instructions for the test and list of musical extracts used.

"This is a test of musical appreciation. For each 'question' you will hear two short musical extracts. Listen to them carefully and compare the style and sound of each, then decide whether the two extracts were by the same composer or by different composers. If you think they are by the same composer, put an 'S' on your answer sheet. If you think they are by different composers, put a 'D' on your answer sheet.

Here is an example:"

Extract from BACH Brandenburg Conc. No. 1

Extract from BARTOK Concerto for Orchestra

"These two extracts were, of course, by different composers: they were in different styles and had different sounds.

Here is another example:"

BACH Brandenburg Conc. No. 2

BACH Brandenburg Conc. No. 3

"These two extracts were by the same composer: they were in the same style and had the same sound.

Here is the test. Write 'S' for 'same' or 'D' for 'different'."

1.	MOZART	Symphony No. 40
	BARTOK	Miraculous Mandarin Suite
2.	MOZART	Horn Concerto
	MOZART	Horn Concerto
3.	TCHAIKOVSKY	Piano Concerto (B^b min.)
	GERSHWIN	Rhapsody in Blue
4.	BARTOK	Music for Strings, Percussion and Celeste
	BARTOK	Miraculous Mandarin Suite
5.	ARNOLD	Tam O'Shanter Overture
	ARNOLD	Scottish Dances, No. 1
6.	STRAUSS	Horn Concerto
	MOZART	Horn Concerto
7.	BEETHOVEN	Symphony No. 8
	BEETHOVEN	Symphony No. 8
8.	TCHAIKOVSKY	Piano Concerto (B^b min.)
	BEETHOVEN	Piano Concerto
9.	MOZART	Jupiter Symphony (No. 41)
	MOZART	Jupiter Symphona (No. 41)
10.	SCHOENBERG	Transfigured Night
	SCHOENBERG	Transfigured Night
11.	BEETHOVEN	Violin Concerto
	BACH	Violin Concerto (A min.)
12.	BACH	Brandenburg Concerto No. 1
	BEETHOVEN	Symphony No. 5
13.	TCHAIKOVSKY	Romeo and Juliet Overture
	TCHAIKOVSKY	1812 Overture
14.	SIBELIUS	Karelia Suite
	SIBELIUS	Karelia Suite
15.	STRAVINSKY	Petroushka
	BARTOK	Concerto for Orchestra
16.	HANDEL	Messiah (For unto Us)
	HANDEL	Messiah (Hallelujah)
17.	MOZART	Ave Verum
	BRAHMS	How lovely is thy Dwelling
18.	KODALY	Chorale from Psalms Hungarius
	HANDEL	Baden the Priest

19.	WALTON	Belshazzar's Feast
	WALTON	Belshazzar's Feast
20.	VERDI	Requiem (Dies Irae)
	VAUGHAN WILLIAMS	In Windsor Forest
21.	GILBERT AND SULLIVAN	Mikado (For he gone and married)
	GILBERT AND SULLIVAN	Mikado (Cachucha)
22.	WAGNER	Tanhauser
	WAGNER	Tanhauser
23.	GOUNOD	Faust (Glory and Love)
	STRAVINSKY	Oedipus Rex
24.	BEETHOVEN	Piano Sonata Op.31 No. 2
	LISZT	La Campanella (Paganini Etude)
25.	CHOPIN	Polonaise No. 3 (A maj.)
	CHOPIN	Polonaise No. 6 (A^b min.)
26.	BACH	Italian Concerto
	BYRD	Carmon's Whistle
27.	BACH	2 part invention No. 8
	BACH	2 part invention No. 13
28.	SCHUBERT	Trio in B^b
	SCHUBERT	Trout Quintet
29.	RAVEL	Introduction and Allegro
	BEETHOVEN	Quartet No. 1 Op.18
30.	CARLOS	Variations for flute and electronic sound
	STOCKHAUSEN	Prozession

APPENDIX 5

Test of Recognition of Composer Style - The second 30 item version

Instructions for the test and list of musical extracts used.

"This is a test of musical appreciation. For each 'question' you will hear two short musical extracts. Listen to them carefully and compare the style and sound of each, then decide whether the two extracts were by the same composer or by different composers. If you think they are by the same composer, put an 'S' on your answer sheet. If you think they are by different composers, put a 'D' on your answer sheet.

Here is an example:"

Extract from BACH Brandenburg Conc. No. 1

Extract from BARTOK Concerto for Orchestra

"These two extracts were, of course, by different composers: they were in different styles and had different sounds.

On your answer sheet you will see a 'D' has been written in.

Here is another example:"

BACH Brandenburg Conc. No. 2

BACH Brandenburg Conc. No. 3

"These two extracts were by the same composer: they were in the same style and had the same sound.

So there is an 'S' on the answer sheet. Note that although they are by the same composer, these two extracts are from different pieces of music. However, in this test you have only to decide whether the composer is the same for the short extracts of music you will hear.

Here is the test."

1.	BRAHMS	Academic Festival Overture
	BRAHMS	St. Anthony Variations
2.	TCHAIKOVSKY	1812 Overture
	TCHAIKOVSKY	Marche Slave
3.	MOZART	Piano Concerto (k 488)
	TCHAIKOVSKY	Piano Concerto (B^b min.)
4.	STRAVINSKY	Firebird Suite
	STRAVINSKY	Firebird Suite
5.	HANDEL	Concerto Grosso. Op.6 No. 11
	BARTOK	Concerto for Orchestra
6.	BEETHOVEN	Symphony No. 5
	BARTOK	Music for Strings, Percussion and Celeste
7.	KODALY	Dances of Galanta
	KODALY	Dances of Galanta
8.	MENDELSSOHN	Hebrides Overture
	DEBUSSY	La Mer
9.	BEETHOVEN	Symphony No. 6
	BEETHOVEN	Symphony No. 6
10.	DEBUSSY	L'Apres midi d'un faune
	DEBUSSY	L'Apres midi d'un faune
11.	BACH	Violin Concerto in E
	MENDELSSOHN	Violin Concerto
12.	TIPPETT	Interlude "Child of our Time"
	BACH	Brandenburg Concerto No. 1
13.	BRITTEN	Sea Interludes No. 2
	BRITTEN	Sea Interludes No. 4
14.	HINDEMITH	Mathis du Maler
	HINDEMITH	Mathis du Maler
15.	MOZART	Eine Kleine Nachtmusik
	BEETHOVEN	Symphony No. 5
16.	MUSSORGSKY	Pictures at an Exhibition
	MUSSORGSKY	Pictures at an Exhibition
17.	RAVEL	Daphnis and Chloe Suite 2
	RAVEL	Daphnis and Chloe Suite 2
18.	ELGAR	Enigma Variations
	ELGAR	Enigma Variations

19.	HAYDN	Trumpet Concerto (E^b)
	PURCELL	Trumpet Tunes I
20.	RACHMANINOV	Piano Concerto No. 2
	RACHMANINOV	Piano Concerto No. 2
21.	BERLIOZ	Symphonie Fantastique
	SCHUBERT	Symphony No. 5
22.	WAGNER	Tamhaüser
	ROSSINI	William Tell Overture
23.	MOZART	Horn Concerto No. 2
	MOZART	Horn Concerto No. 4
24.	GRIEG	Piano Concerto
	BEETHOVEN	Piano Concerto No. 5
25.	KODALY	Psalm Hungaricus
	MOZART	Overture to Cosi Fan Tutte
26.	BACH	Clavier Konsert (F maj.)
	BACH	Clavier Konsert (F maj.)
27.	BIZET	Dance Bohemienne
	DEBUSSY	Sirenes
28.	BARTOK	Music for Strings, Percussion and Celeste
	BACH	Brandenburg Concerto No. 5
29.	MOZART	Concerto for Flute and Harp
	MOZART	Concerto for Flute and Harp
30.	SCHUMANN	Piano Concerto
	BEETHOVEN	Piano Concerto No. 3

Item Analyses on the First 30 Item Version of the Test of Recognition of Composer Style

Item No.	N_H	N_L	f	d	Phi
1	32	22	.54	.20	.20
2	32	19	.51	.26	.26
3	44	25	.69	.38	.41
4	45	41	.86	.08	.12
5	38	37	.75	.02	.02
6	31	23	.54	.16	.16
7	35	19	.54	.32	.32
8	32	18	.50	.28	.28
9	38	29	.67	.18	.19
10	25	20	.45	.10	.10
11	22	15	.37	.14	.15
12	32	19	.51	.26	.26
13	25	17	.42	.16	.16
14	38	23	.61	.30	.31
15	45	34	.79	.22	.27
16	48	41	.89	.14	.22
17	30	24	.54	.12	.12
18	41	32	.73	.18	.20
19	44	35	.79	.18	.22
20	41	39	.80	.04	.05
21	43	39	.82	.08	.10
22	21	11	.32	.20	.21
23	45	37	.82	.16	.21
24	24	12	.36	.24	.25
25	43	27	.70	.32	.35
26	44	34	.78	.20	.24
27	45	39	.84	.12	.16
28	23	14	.37	.18	.19
29	43	35	.78	.16	.19
30	29	23	.52	.12	.12

For this item analysis there were 50 people in each of the high scoring and low scoring groups.
N_H is the number of persons in the high scoring group who correctly answered the item.
N_L is the number of persons in the low scoring group who correctly answered the item.
f is the facility level of the item.
d is the discrimination index of the item.

Appendix 6 - cont'd

Item No.	N_H	N_L	f	d
1	22	20	.58	.05
2	24	15	.54	.25
3	33	17	.69	.44
4	32	29	.84	.08
5	29	24	.73	.13
6	25	17	.58	.22
7	26	16	.58	.27
8	26	12	.52	.38
9	29	19	.66	.27
10	18	12	.41	.16
11	15	12	.37	.08
12	23	10	.45	.36
13	18	11	.40	.19
14	25	17	.58	.22
15	32	24	.77	.22
16	35	28	.87	.19
17	24	15	.54	.25
18	28	20	.66	.22
19	32	26	.80	.16
20	32	27	.81	.13
21	33	28	.84	.13
22	17	9	.36	.22
23	35	25	.80	.22
24	17	7	.33	.27
25	32	18	.69	.38
26	32	23	.76	.25
27	33	26	.81	.19
28	18	9	.37	.25
29	32	21	.73	.30
30	23	16	.54	.19

For this analysis there were 36 people in each of the high scoring and low scoring groups.

APPENDIX 7

Item Analyses Based on the 60 Items in Both Versions of the Test of Recognition of Composer Style

Item No.	N_H	N_L	f	d
I 1	20	14	.68	.24
I 2	20	9	.58	.44
I 3	19	11	.60	.32
I 4	25	19	.88	.24
I 5	17	11	.56	.24
I 6	15	7	.44	.32
I 7	16	11	.54	.20
I 8	17	15	.64	.08
I 9	20	22	.84	-.08
I10	20	11	.62	.36
I11	16	8	.48	.32
I12	19	15	.68	.16
I13	8	5	.26	.12
I14	16	11	.54	.20
I15	18	15	.66	.12
I16	21	17	.76	.16
I17	12	13	.50	-.04
I18	24	21	.90	.12
I19	24	17	.82	.28
I20	23	23	.92	.00
I21	22	23	.90	-.04
I22	9	9	.36	.00
I23	23	23	.92	.00
I24	9	6	.30	.12
I25	19	19	.76	.00
I26	25	15	.80	.40
I27	23	22	.90	.04
I28	12	2	.28	.40
I29	24	16	.80	.32
I30	12	10	.44	.08
II 1	23	18	.82	.20
II 2	16	11	.54	.20
II 3	21	18	.78	.12
II 4	18	12	.60	.24
II 5	25	13	.76	.48
II 6	24	21	.90	.12
II 7	25	23	.96	.08
II 8	15	12	.54	.12
II 9	23	17	.80	.24
II10	25	20	.90	.20
II11	21	13	.68	.32
II12	24	20	.88	.16
II13	16	7	.46	.36
II14	14	8	.44	.24
II15	11	7	.36	.16
II16	19	12	.62	.28
II17	13	19	.64	-.24
II18	18	12	.60	.24
II19/				

Item No.	N_H	N_L	f	d
II19	15	13	.56	.08
II20	19	15	.68	.16
II21	11	11	.44	.00
II22	25	19	.88	.24
II23	25	17	.84	.32
II24	20	7	.54	.52
II25	24	15	.78	.36
II26	23	19	.84	.16
II27	19	17	.72	.08
II28	25	16	.82	.36
II29	25	13	.76	.48
II30	19	17	.72	.08

The high scoring and low scoring groups each are of 25 people. The scores on all 60 items were used for selecting the groups.

Item No.	N_H	N_L	f	d
I 1	28	17	.60	.29
I 2	29	13	.56	.43
I 3	29	16	.60	.35
I 4	35	31	.89	.10
I 5	26	18	.59	.21
I 6	20	10	.40	.27
I 7	25	17	.56	.21
I 8	27	22	.66	.13
I 9	31	34	.87	-.80
I10	27	13	.54	.37
I11	22	15	.50	.18
I12	28	18	.62	.27
I13	13	10	.31	.08
I14	20	19	.52	.02
I15	26	24	.67	.05
I16	29	25	.72	.10
I17	19	20	.52	-.02
I18	33	30	.85	.08
I19	34	28	.83	.16
I20	35	33	.91	.05
I21	32	34	.89	-.05
I22	14	12	.35	.05
I23	34	35	.93	-.02
I24	12	8	.27	.10
I25	28	27	.74	.02
I26	36	26	.83	.27
I27	34	34	.91	.00
I28	15	7	.29	.21
I29	36	26	.83	.27
I30	19	17	.48	.05

II 1/

Item No.	N_H	N_L	f	d
II 1	32	30	.83	.05
II 2	23	17	.54	.16
II 3	31	27	.78	.10
II 4	26	19	.60	.18
II 5	35	22	.77	.35
II 6	36	31	.90	.13
II 7	37	34	.95	.08
II 8	20	15	.47	.13
II 9	34	27	.82	.18
II10	37	31	.91	.16
II11	29	21	.67	.21
II12	36	31	.90	.13
II13	23	8	.41	.40
II14	17	14	.41	.08
II15	16	9	.33	.18
II16	30	17	.63	.35
II17	20	24	.59	-.10
II18	25	22	.63	.08
II19	21	23	.59	-.05
II20	26	22	.64	.10
II21	18	15	.44	.08
II22	36	28	.86	.21
II23	37	25	.83	.32
II24	30	15	.60	.40
II25	32	20	.70	.32
II26	34	31	.87	.08
II27	30	27	.77	.08
II28	34	25	.79	.24
II29	35	22	.77	.35
II30	29	25	.72	.10

The high scoring and low scoring groups each are of 37 people. The scores on all 60 items were used for selecting the groups.

Item No.	N_H	N_L	f	d
* I 1	31	17	.64	.37
* I 2	28	11	.52	.45
* I 3	27	12	.52	.40
* I 4	36	31	.90	.13
* I 5	25	20	.60	.13
* I 6	25	10	.47	.40
* I 7	26	14	.54	.32
I 8	26	25	.68	.02
I 9	31	34	.87	-.08
* I10	31	15	.62	.43
* I11	25	13	.51	.32
* I12	28	16	.59	.32
I13	11	9	.27	.05
* I14	23	18	.55	.13
I15	24	26	.67	-.05

* I16/

Appendix 7 - cont'd

Item No.	N_H	N_L	f	d
* I16	31	26	.77	.13
I17	18	23	.55	-.13
I18	32	30	.83	.05
* I19	33	28	.82	.13
I20	33	34	.90	-.02
I21	32	35	.90	-.08
I22	12	12	.32	.00
I23	35	35	.94	.00
* I24	12	9	.28	.08
I25	28	29	.77	-.02
* I26	37	26	.85	.29
I27	34	33	.90	.02
* I28	15	9	.32	.16
* I29	36	25	.82	.29
I30	14	19	.44	-.13
*II 1	33	30	.85	.08
*II 2	23	16	.52	.18
*II 3	29	27	.75	.05
*II 4	27	20	.63	.18
*II 5	35	21	.75	.37
*II 6	36	30	.89	.16
II 7	36	34	.94	.05
*II 8	20	17	.50	.08
*II 9	33	27	.81	.16
*II10	37	31	.91	.16
*II11	28	22	.67	.16
*II12	36	30	.89	.16
*II13	23	6	.39	.45
*II14	21	16	.50	.13
*II15	15	9	.32	.16
*II16	29	17	.62	.32
II17	16	23	.52	-.18
*II18	26	22	.64	.10
II19	18	23	.55	-.13
II20	23	22	.60	.02
II21	17	15	.43	.05
*II22	35	29	.86	.16
*II23	35	26	.82	.24
*II24	29	14	.58	.40
*II25	32	20	.70	.32
II26	33	31	.86	.05
II27	29	30	.79	-.02
*II28	35	22	.77	.35
*II29	35	23	.78	.32
II30	28	26	.72	.05

The high scoring and low scoring groups each are of 37 people. Scores from the 39 asterisked items were used for selecting the groups.

Appendix 7 - cont'd

Item No.	N_H	N_L	f	d
* I 1	29	15	.62	.40
* I 2	27	10	.52	.48
* I 3	28	11	.55	.48
I 4	34	32	.94	.05
* I 5	25	17	.60	.22
* I 6	22	7	.41	.42
* I 7	27	12	.55	.42
I 8	24	24	.68	.00
I 9	29	33	.88	-.11
I10	29	13	.60	.45
* I11	24	12	.51	.34
* I12	25	14	.55	.31
I13	11	12	.32	-.02
* I14	22	16	.54	.17
I15	22	25	.67	-.08
I16	29	25	.77	.11
I17	14	22	.51	-.22
I18	31	29	.85	.05
I19	31	26	.81	.14
I20	31	31	.88	.00
I21	30	32	.88	-.05
I22	13	12	.35	.02
I23	33	34	.95	-.02
I24	11	11	.31	.00
I25	27	27	.77	.00
* I26	35	24	.84	.31
I27	32	31	.90	.02
* I28	15	9	.34	.17
* I29	33	23	.80	.28
I30	14	18	.45	-.11
II 1	33	31	.91	.05
II 2	21	15	.51	.17
II 3	28	24	.74	.11
*II 4	23	19	.60	.11
*II 5	33	19	.74	.40
II 6	34	29	.90	.14
II 7	35	32	.95	.08
II 8	16	16	.45	.00
II 9	30	27	.81	.08
II10	34	31	.92	.08
*II11	25	18	.61	.20
II12	34	28	.88	.17
*II13	24	5	.41	.54
II14	17	15	.45	.05
II15	14	10	.34	.11
*II16/				

Appendix 7 - cont'd

Item No.	N_H	N_L	f	d
*II16	29	14	.61	.42
II17	17	22	.55	.14
II18	23	23	.65	.00
II19	14	22	.51	.22
II20	21	22	.61	.02
II21	16	14	.42	.05
*II22	33	28	.87	.14
*II23	35	25	.85	.28
*II24	28	13	.58	.42
*II25	31	19	.71	.34
II26	32	28	.85	.11
II27	28	27	.78	.02
*II28	33	21	.77	.34
*II29	34	24	.82	.28
II30	27	26	.75	.02

The high scoring and low scoring groups each are of 35 people. Scores from the 24 asteriaked items were used for selecting the groups.

APPENDIX 8

Frequency Distributions of the Several Versions of the Test of Recognition of Composer Style

Score/60	f
50	1
49	2
48	2
47	2
46	4
45	4
44	10
43	12
42	12
41	9
40	12
39	13
38	12
37	5
36	3
35	3
34	7
33	1
32	3
31	1
30	-
29	2

Mean = 40.23
S.D. = 4.19

Appendix 8 - cont'd

Frequency Distribution Obtained from the 39 Items Used in Stage III of the Item Analysis

Score/39	f
34	3
33	4
32	1
31	3
30	11
29	8
28	6
27	15
26	9
25	12
24	11
23	8
22	8
21	7
20	5
19	2
18	4
17	3

Mean = 20.50
S.D. = 4.05

Appendix 8 - cont'd

Frequency Distribution Obtained from the 24 Items Used in the Final Step of Stage III of the Item Analysis

Score/24	f
23	1
22	3
21	-
20	7
19	7
18	17
17	13
16	14
15	14
14	10
13	11
12	5
11	5
10	5
9	5
8	3

Mean = 15.33
S.D. = 3.34

APPENDIX 9

Test of Recognition of Composer Style - The final 26 item version

Instructions for the test and list of musical extracts used.

"This is a test of musical appreciation. For each 'question' you will hear two short musical extracts. Listen to them carefully and compare the style and sound of each, then decide whether the two extracts were by the same composer or by different composers. If you think they are by the same composer, put an 'S' on your answer sheet. If you think they are by different composers, put a 'D' on your answer sheet.

Here is an example:"

Extract from BACH Brandenburg Conc. No. 1

Extract from BARTOK Concerto for Orchestra

"These two extracts were, of course, by different composers: they were in different styles and had different sounds.

On your answer sheet you will see a 'D' has been written in.

Here is another example:"

BACH Brandenburg Conc. No. 2

BACH Brandenburg Conc. No. 3

"These two extracts were by the same composer: they were in the same style and had the same sound.

So there is an 'S' on the answer sheet. Note that although they are by the same composer, these two extracts are from different pieces of music. However, in this test you have only to decide whether the composer is the same for the short extracts of music you will hear.

Here is the test."

Appendix 9 - cont'd

1.	BACH	2 part invention No. 8
(I - 27)	BACH	2 part invention No. 13
2.	RAVEL	Introduction and Allegro
(I - 29)	BEETHOVEN	Quartet No. 1 Op.18
3.	SCHUBERT	Trio in B^b
(I - 28)	SCHUBERT	Trout Quintet
4.	BACH	Violin Concerto in E
(II - 11)	MENDELSSOHN	Violin Concerto
5.	TIPPETT	Interlude "Child of our Time"
(II - 12)	BACH	Brandenburg Concerto No. 1
6.	MUSSORGSKY	Pictures at an Exhibition
(II - 16)	MUSSORGSKY	Pictures at an Exhibition
7.	MOZART	Horn Concerto No. 2
(II - 23)	MOZART	Horn Concerto No. 4
8.	BACH	Clavier Konzert (F maj.)
(II - 26)	BACH	Clavier Konzert (F maj.)
9.	BARTOK	Music for Strings, Percussion and Celeste
(II - 28)	BACH	Brandenburg Concerto No. 5
10.	MOZART	Concerto for flute and harp
(II - 29)	MOZART	Concerto for flute and harp
11.	BEETHOVEN	Symphony No. 8
(I - 7)	BEETHOVEN	Symphony No. 8
12.	SCHOENBERG	Transfigured Night
(I - 10)	SCHOENBERG	Transfigured Night
13.	BEETHOVEN	Violin Concerto
(I - 11)	BACH	Violin Concerto (A min.)
14.	BACH	Brandenburg Concerto No. 1
(I - 12)	BEETHOVEN	Symphony No. 5
15.	SIBELIUS	Karelia Suite
(I - 14)	SIBELIUS	Karelia Suite
16.	KODALY	Psalm Hungaricus
(II - 25)	MOZART	Overture to Cosi Fan Tutti
17.	TCHAIKOVSKY	Piano Concerto (B^b min.)
(I - 3)	GERSHWIN	Rhapsody in Blue
18.	MOZART	Horn Concerto
(I - 2)	MOZART	Horn Concerto

19/

Appendix 9 - cont'd

19.	STRAVINSKY	Firebird Suite
(II - 4)	STRAVINSKY	Firebird Suite
20.	TCHAIKOVSKY	1812 Overture
(II - 2)	TCHAIKOVSKY	Marche Slave
21.	HANDEL	Concerto Grosso Op.6 No. 11
(II - 5)	BARTOK	Concerto for Orchestra
22.	GREIG	Piano Concerto
(II - 24)	BEETHOVEN	Piano Concerto No. 5
23.	BRITTEN	Sea Interludes No. 2
(II - 13)	BRITTEN	Sea Interludes No. 4
24.	STRAUSS	Horn Concerto
(I - 6)	MOZART	Horn Concerto
25.	MOZART	Symphony No. 40
(I - 1)	BARTOK	Miraculous Mandarin Suite
26.	ARNOLD	Tam O'Shanter Overture
(I - 5)	ARNOLD	Scottish Dances, No. 1

APPENDIX 10

Administration of the Semantic Differential

Spoken Instructions for Form X

In this study we wish to find out what you believe is the character of different pieces of music. We are therefore going to play you several pieces of music. After hearing each piece, we would like you to judge it by rating it against pairs of opposite adjectives.

There are 15 pairs of adjectives and you have to rate each piece of music on each of these. For each piece of music you will have a separate page - and each page has the same sets of adjectives. You can see examples of the kind of adjectives used on the sheet in front of you:

Beautiful - Ugly
Heavy - Light
Calm - Excited
Masculine - Feminine

This is how you do the rating. If after hearing the piece of music you feel the music is very well described by one of the adjectives of a pair, place a cross on the line close to that adjective. Example A shows you this.

If you feel that the music is quite well described, but not extremely well described, by the adjective at one end, then you should place your cross as shown in example B.

If you feel that the music is described to a slight extent, but only to a slight extent, by the adjective at one end, then you should place your cross as shown in example C.

You should, of course, always put your cross nearest the end which is most characteristic of the music you are judging.

However, if you feel that both adjectives of a pair are equally appropriate, or if the adjectives are quite irrelevant, then you should put your cross in the middle space. Example D shows this.

Appendix 10 - cont'd

You must listen carefully to each piece of music and after listening, rate it on all the sets of adjectives. Do not waste time by worrying or puzzling over particular items: it is your immediate feelings about the music we want. However, do not be careless for we want your true impression.

After each piece of music you will have 2 - 3 minutes to rate it on all the pairs of adjectives. This should be quite enough time if you work steadily down through all the pairs of adjectives. If you work quickly you will complete the page before you forget what the music was like. Just before the time is up, I shall tell you so that you can quickly finish your rating before the next piece of music is played.

If you have any questions, ask them now.

Turn over. At the top of the page it should be numbered as page one.

Appendix 10 - cont'd

Spoken Instructions for Form Y

In this study we wish to find out what people believe is the character of different pieces of music. We are therefore going to play you several pieces of music. After hearing each piece, we would like you to judge it against a series of descriptive scales, that is against pairs of opposite adjectives.

There are 15 pairs of adjectives and you have to rate each piece of music on each of these. For each piece of music you will have a separate page - and each page has the same sets of adjectives. You can see examples of the kind of adjectives used on the sheet in front of you:

Beautiful - Ugly
Heavy - Light
Calm - Excited
Masculine - Feminine

This is how you do the rating. If after hearing the piece of music you feel the music is very well described by one of the adjectives of a pair, place a cross on the line close to that adjective. Example A shows you this.

If you feel that the music is quite well described, but not extremely well described, by the adjective at one end, then you should place your cross as shown in example B.

If you feel that the music is described to a slight extent, but only to a slight extent, by the adjective at one end, then you should place your cross as shown in example C.

You should, of course, always put your cross nearest the end which is most characteristic of the music you are judging.

However, if you feel that both adjectives of a pair are equally appropriate, or if the adjectives are quite irrelevant, then you should put your cross in the middle space. Example D shows this.

You must listen carefully to each piece of music and after listening, rate it on all these sets of adjectives. Do not waste time by worrying or puzzling over particular items: it is your immediate feelings about the music we want. However, do not be careless for we want your true impression.

After each piece of music you will have about 2 minutes to rate it on all the pairs of adjectives: during this time you will have a second opportunity to hear the music. There should be quite enough time providing you work steadily. Just before the time is up, I shall tell you so that you can quickly finish the rating before the next piece of music is played.

Appendix 10 - cont'd

If you have any questions, ask them now.

Turn over. At the top of the page it should be numbered as page one.

Appendix 10 - cont'd

Spoken Instructions for Form Z

In this study we wish to find out what people believe is the character of different pieces of music. We are therefore going to play you several pieces of music. After hearing each piece, we would like you to judge it against a series of descriptive scales, that is against pairs of opposite adjectives.

There are 15 pairs of adjectives and you have to rate each piece of music on each of these. For each piece of music you will need a separate page - and each page has the same sets of adjectives. You can see examples of the kind of adjectives used on the sheet in front of you:

Beautiful - Ugly
Heavy - Light
Calm - Excited
Masculine - Feminine

This is how you do the rating. If after hearing the piece of music you feel the music is very well described by one of the adjectives of a pair, place a cross on the line close to that adjective. Example A shows you this.

If you feel that the music is quite well described, but not extremely well described, by the adjective at one end, then you should place your cross as shown in example B.

If you feel that the music is described to a slight extent, but only to a slight extent, by the adjective at one end, then you should place your cross as shown in example C.

You should, of course, always put your cross nearest the end which is most characteristic of the music you are judging.

However, if you feel that both adjectives of a pair are equally appropriate, or if the adjectives are quite irrelevant, then you should put your cross in the middle space. Example D shows this.

Appendix 10 - cont'd

You must listen carefully to each piece of music and after listening, rate it on all the sets of adjectives. Do not waste time by worrying or puzzling over particular items: it is your immediate feelings about the music we want. However, do not be careless for we want your true impression.

You must listen carefully to each piece of music for after listening you must rate it on all the sets of adjectives. So as to make sure that every person completes all the ratings before the next piece is played, I shall say the two adjectives of the 1st pair and then give you enough time to rate the music using them. Then I shall say the two adjectives of the next pair and leave you time for the rating. In the same way, I shall say all the pairs of adjectives, leaving time for your rating the music on them.

To keep the music fresh in your mind while doing this, we shall repeat it twice: first of all after rating on the first five pairs of adjectives and again after the next five pairs.

If you have any questions, ask them now.

Turn over. At the top of the page it should be numbered as page one.

Appendix 10 - cont'd

This was the front sheet to give the examples referred to in the spoken instructions. It was the same for all three forms of the semantic differential.

NAME .....

SCHOOL .....

CLASS .....

Example A. (If the music is very well described)

Beautiful ___X___ : ___ : ___ : ___ : ___ : ___ : ___ Ugly

or

Beautiful ___ : ___ : ___ : ___ : ___ : ___ : ___X___ Ugly

Example B. (If the music is quite well described)

Heavy ___ : ___X___ : ___ : ___ : ___ : ___ : ___ Light

or

Heavy ___ : ___ : ___ : ___ : ___ : ___X___ : ___ Light

Example C. (If the music is described to only a slight extent)

Calm ___ : ___ : ___X___ : ___ : ___ : ___ : ___ Excited

or

Calm ___ : ___ : ___ : ___ : ___X___ : ___ : ___ Excited

Example D. (If the adjectives are equally appropriate or irrelevant)

Masculine ___ : ___ : ___ : ___X___ : ___ : ___ : ___ Feminine

Appendix 10 - cont'd

Each person had 10 rating sheets like this. They were numbered 1 to 10.

Pleasant	____:	____:	____:	____:	____:	____:	____	Unpleasant
Heavy	____:	____:	____:	____:	____:	____:	____	Light
Passive	____:	____:	____:	____:	____:	____:	____	Active
Awful	____:	____:	____:	____:	____:	____:	____	Nice
Colourful	____:	____:	____:	____:	____:	____:	____	Colourless
Hot	____:	____:	____:	____:	____:	____:	____	Cold
Beautiful	____:	____:	____:	____:	____:	____:	____	Ugly
Weak	____:	____:	____:	____:	____:	____:	____	Strong
Good	____:	____:	____:	____:	____:	____:	____	Bad
Boring	____:	____:	____:	____:	____:	____:	____	Interesting
Calm	____:	____:	____:	____:	____:	____:	____	Excited
Worthless	____:	____:	____:	____:	____:	____:	____	Valuable
In-sensitive	____:	____:	____:	____:	____:	____:	____	Sensitive
Masculine	____:	____:	____:	____:	____:	____:	____	Feminine
Negative	____:	____:	____:	____:	____:	____:	____	Positive

Appendix 10 - cont'd

Questionnaire to be done after the completion of ratings - Form X

X.

Please answer the questions on this questionnaire by putting a tick beside the most appropriate answer given.

How well did you understand the instructions?

a. They were perfectly clear.

b. They were a little confusing but I didn't take long to understand what to do.

c. I felt confused throughout.

How difficult do you find it to use the given adjectives for rating the music?

a. Very difficult.

b. Fairly difficult.

c. Not too difficult.

d. Very easy.

Did you feel that there was enough time to do the ratings?

a. There was more than enough time.

b. There was enough time, but only just.

c. There was not nearly enough time, I was rushed.

Did the music stay fairly fresh in your memory while you did the ratings?

a. Yes.

b. No.

Did you need to hurry to finish the ratings after the reminder that time was nearly up?

a. Yes.

b. No.

If you did have to hurry at the end of the time to complete the ratings, do you think that you gave the 'true' answers?

a. Yes.

b. Uncertain.

c. No.

Questionnaire to be done after the completion of ratings - Form Y

Y.

Please answer the questions on this questionnaire by putting a tick beside the most appropriate answer given.

How well did you understand the instructions?

a. They were perfectly clear.

b. They were a little confusing, but I didn't take long to understand what to do.

C. I felt confused throughout.

How difficult do you find it to use the given adjectives for rating the music?

a. Very difficult.

b. Fairly difficult.

c. Not too difficult.

d. Very easy.

Did you feel that there was enough time to do the ratings?

a. There was more than enough time.

b. There was enough time, but only just.

c. There was not nearly enough time, I was rushed.

Did the music stay fairly fresh in your memory while you did the ratings?

a. Yes.

b. No.

Was the repetition of the music helpful?

a. Yes.

b. No.

Did you need to hurry to finish the ratings after the reminder that time was nearly up?

a. Yes.

b. No.

If you did have to hurry at the end of the time to complete the ratings, do you think that you gave the 'true' answers?

a. Yes.

b. Uncertain.

c. No.

Appendix 10 - cont'd

Questionnaire to be done after the completion of ratings - Form Z

Z.

Please answer the questions on this questionnaire by putting a tick beside the most appropriate answer given.

How well did you understand the instructions?

a. They were perfectly clear.

b. They were a little confusing, but I didn't take long to understand what to do.

c. I felt confused throughout.

How difficult did you find it to use the given adjectives for rating the music?

a. Very difficult.

b. Fairly difficult.

c. Not too difficult.

d. Very easy.

Did you feel that there was enough time to do the ratings?

a. There was more than enough time.

b. There was enough time, but only just.

c. There was not nearly enough time, I was rushed.

Did the music stay fairly fresh in your memory while you did the ratings?

a. Yes.

b. No.

Did the tape-recorded voice speaking the adjectives, distract you and make you forget what the music had been like?

a. Yes.

b. No.

Was the repetition of the music helpful?

a. Yes.

b. No.

APPENDIX 11

Means and Standard Deviations for Semantic Differential Ratings of Music

Based on results from sample from pilot survey N = 85
and results from the main study N = 88

	Trad Jazz	'Play Bach'	Bruch	Prokofiev	Vivaldi	Brahms	Simon B. over T. Waters	Bach	Bartok
*Pleasant -un- pleasant	5.19 1.64	4.41 1.85	4.20 2.02	4.51 1.78	4.50 1.83	4.56 1.79	6.49 1.11	3.92 2.01	3.22 1.80
Heavy- Light	2.93 1.98	2.76 1.68	3.14 2.01	5.41 1.40	1.76 1.13	2.20 1.27	2.28 1.49	2.97 1.78	5.77 1.42
Active- Passive	6.37 1.10	3.99 1.73	2.15 1.28	5.24 1.43	4.74 1.98	5.03 1.71	2.65 1.84	3.91 1.74	3.94 1.89
Nice- Awful	4.68 1.71	3.89 1.87	3.86 2.04	4.35 1.70	4.03 1.93	4.48 1.72	6.44 1.05	3.56 2.02	3.10 1.77
Colourful -colour- less	5.74 1.50	4.00 1.87	3.50 1.97	4.47 1.92	4.44 1.97	5.12 1.65	5.49 1.67	3.85 1.98	3.35 1.97
Hot-Cold	5.20 1.35	3.46 1.52	3.06 1.50	4.33 1.66	3.74 1.47	4.12 1.37	4.91 1.55	3.22 1.42	3.05 1.73
Beauti- ful-Ugly	3.80 1.36	3.62 1.57	4.36 2.01	3.80 1.45	4.10 1.80	4.40 1.54	6.18 1.07	3.68 1.89	2.63 1.51
Strong- Weak	5.36 1.56	3.63 1.58	2.98 1.65	5.82 1.50	3.14 1.49	3.76 1.60	4.52 1.82	3.42 1.59	5.60 1.61
Good- Bad	4.84 1.79	3.82 1.78	4.17 1.95	4.47 1.86	4.07 1.87	4.46 1.76	6.38 1.14	3.61 1.88	3.40 1.82
Interest- ing- Boring	5.34 1.45	3.67 1.83	3.44 2.09	4.70 1.89	3.69 2.01	4.23 1.86	6.09 1.41	3.17 1.93	3.78 1.95
Excited- Calm	6.15 1.13	3.60 1.67	1.79 1.17	5.10 1.53	4.08 1.90	4.29 1.75	2.04 1.57	3.28 1.50	4.73 1.40
Valuable- Worthless	4.09 1.48	3.60 1.49	3.74 1.91	4.44 1.52	3.83 1.69	3.99 1.55	6.04 1.33	3.24 1.70	3.51 1.68
Sensitive -in- sensitive	3.72 1.57	4.15 1.47	4.93 2.00	4.03 1.62	4.20 1.66	4.41 1.60	6.36 1.11	3.75 1.90	3.39 1.77
Masculine -Feminine	4.50 1.46	3.47 1.51	2.56 1.51	5.42 1.58	2.59 1.42	2.79 1.39	3.48 1.83	3.25 1.48	5.28 1.24
Positive- Negative	4.85 1.56	3.88 1.62	3.69 1.72	4.71 1.72	3.83 1.54	4.07 1.59	5.61 1.62	3.46 1.68	4.04 1.88

*The 1st named adjective of a pair indicates the high scoring end of semantic differential rating scale.

For each entry in the table the mean is above the S.D.

APPENDIX 12

Factor Loadings Obtained By A Factor Analysis of All The Semantic Differential Ratings of Music

	I	II	III
Pleasant-Unpleasant	.81	.08	-.06
Heavy-Light	-.15	-.02	.69
Active-Passive	.07	.79	.11
Nice-Awful	.88	.08	-.05
Colourful-Colourless	.64	.37	-.07
Hot-Cold	.55	.37	.12
Beautiful-Ugly	.83	-.08	-.17
Strong-Weak	.31	.32	.67
Good-Bad	.86	.04	.03
Interesting-Boring	.80	.22	.19
Excited-Calm	-.03	.75	.29
Valuable-Worthless	.79	-.01	.13
Sensitive-Insensitive	.63	-.20	-.10
Masculine-Feminine	.02	.23	.64
Positive-Negative	.64	.11	.20

The factor loadings are based on a principal components analysis of semantic differential data using all (9) musical extracts, and all pupils ratings.
Varimax rotation.

Factor I = Evaluation

II = Activity

III = Potency

APPENDIX 13 RESULTS OF THE SEPARATE FACTOR ANALYSES FOR SEMANTIC DIFFERENTIAL RATINGS OF EACH PIECE OF MUSIC

Appendix 13 - 1

Factor Analysis* of Semantic Differential Ratings for the 1st Musical Extract from Chris Barber's "Whistling Rufus".

	Factor Loadings			
	I	II	III	IV
Pleasant-Unpleasant	.80	.09	.17	-.14
Heavy-Light	.04	-.10	-.08	.49
Active-Passive	-.01	.59	.11	-.08
Nice-Awful	.84	.26	-.02	-.11
Colourful-Colourless	.25	.13	.57	-.03
Hot-Cold	.16	.44	.32	.10
Beautiful-Ugly	.68	.09	.19	-.14
Strong-Weak	.20	.55	.05	.60
Good-Bad	.78	.19	.17	.03
Interesting-Boring	.64	-.05	.36	.28
Excited-Calm	.13	.14	.65	.06
Valuable-Worthless	.70	-.04	.14	.05
Sensitive-Insensitive	.61	-.17	.03	.03
Masculine-Feminine	-.12	.06	.13	.38
Positive-Negative	.53	.23	.19	.19

*Principal Components analysis with varimax rotation.

Factor I An evaluation factor.

II This seems to be an 'activity' factor which also contains a 'potency' element of very considerable importance. It is not a typical 'Osgood' factor.

III This factor concerns the excitement and colour of the music. It is in some ways closer in nature to traditional Activity factors despite the low loading for active-passive.

IV A potency factor.

Appendix 13 - 2

Factor Analysis* of Semantic Differential Ratings for the 2nd Musical Extract from Jacques Loussier's Modern Jazz Rendering of a Bach Original on his Record "Play Bach".

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.85	.07	-.06
Heavy-Light	-.13	-.04	.82
Active-Passive	.18	.67	-.10
Nice-Awful	.82	.12	-.11
Colourful-Colourless	.57	.33	-.03
Hot-Cold	.48	.44	.16
Beautiful-Ugly	.80	.00	-.11
Strong-Weak	.30	.49	.30
Good-Bad	.84	.09	-.03
Interesting-Boring	.70	.39	.05
Excited-Calm	.01	.83	.18
Valuable-Worthless	.69	.26	-.02
Sensitive-Insensitive	.45	.06	-.06
Masculine-Feminine	-.09	.17	.51
Positive-Negative	.56	.27	-.15

*Principal Components analysis with varimax rotation.

Factor I An evaluation factor.

II An activity factor, which has a potency element of some importance.

III A potency factor.

Appendix 13 - 3

Factor Analysis* of Semantic Differential Ratings for the 3rd Musical Extract from Bruch's Violin Concerto

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.82	-.11	.10
Heavy-Light	-.10	.61	.23
Active-Passive	.21	.01	.47
Nice-Awful	.89	-.13	.11
Colourful-Colourless	.67	-.03	.00
Hot-Cold	.70	.11	.10
Beautiful-Ugly	.85	.12	-.07
Strong-Weak	.31	.46	.25
Good-Bad	.86	.07	.07
Interesting-Boring	.87	.04	.16
Excited-Calm	-.03	.15	.38
Valuable-Worthless	.73	.28	.04
Sensitive-Insensitive	.59	.34	-.21
Masculine-Feminine	-.03	.11	.59
Positive-Negative	.57	.37	.09

*Principal Components analysis with varimax rotation.

Factor I Factor of evaluation and interest.

II A potency factor

III An activity factor. Again there is a potency element in the high loading for masculine-feminine.

Appendix 13 - 4

Factor Analysis* of Semantic Differential Ratings for the 4th Musical Extract from Prokofiev's Suite "Romeo and Juliet".

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.71	.37	.06
Heavy-Light	-.09	-.05	.62
Active-Passive	.22	.22	.24
Nice-Awful	.77	.37	-.05
Colourful-Colourless	.61	.57	.04
Hot-Cold	.22	.50	.16
Beautiful-Ugly	.52	.62	-.15
Strong-Weak	.19	.02	.68
Good-Bad	.65	.35	.13
Interesting-Boring	.74	.29	.32
Excited-Calm	.12	.25	.38
Valuable-Worthless	.68	.20	.19
Sensitive-Insensitive	.23	.36	-.15
Masculine-Feminine	.14	-.07	.55
Positive-Negative	.61	.10	.19

*Principal Components analysis with varimax rotation.

Factor I An evaluation factor.

II A factor of colour and beauty. This is more akin to an evaluation factor than any other of Osgood's classic factors.

III A potency factor.

N.B. Activity is shared by the three factors, especially II and III.

Appendix 13 - 5

Factor Analysis* of Semantic Differential Ratings for the 5th Musical Extract from Vivaldi's "The Four Seasons".

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.74	.13	.05
Heavy-Light	-.03	.05	.74
Active-Passive	.16	.73	.01
Nice-Awful	.82	.35	-.05
Colourful-Colourless	.55	.47	-.04
Hot-Cold	.35	.57	.04
Beautiful-Ugly	.77	.28	-.12
Strong-Weak	.37	.42	.48
Good-Bad	.80	.21	-.01
Interesting-Boring	.73	.47	.10
Excited-Calm	.06	.65	.23
Valuable-Worthless	.70	.23	.20
Sensitive-Insensitive	.58	.08	-.03
Masculine-Feminine	.01	.05	.45
Positive-Negative	.59	-.04	.21

*Principal Components analysis with varimax rotation.

Factor	I	Evaluation
	II	Activity
	III	Potency

Appendix 13 - 6

Factor Analysis* of Semantic Differential Ratings for the 6th Musical Extract from Brahms Piano Concerto.

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.76	.07	-.05
Heavy-Light	-.19	-.05	.59
Active-Passive	.00	.42	-.03
Nice-Awful	.87	.08	.01
Colourful-Colourless	.45	.30	-.28
Hot-Cold	.38	.48	-.05
Beautiful-Ugly	.87	.04	-.01
Strong-Weak	.27	.61	.34
Good-Bad	.88	.06	.07
Interesting-Boring	.62	.38	.00
Excited-Calm	.06	.55	.11
Valuable-Worthless	.55	.31	-.08
Sensitive-Insensitive	.40	.35	-.27
Masculine-Feminine	.13	.22	.58
Positive-Negative	.52	.33	.10

*Principal Components analysis with varimax rotation.

Factor I An evaluation factor.

II A Factor of Activity with Strength.

III A potency or heaviness factor.

Appendix 13 - 7

Factor Analysis* of Semantic Differential Ratings for the 7th Musical Extract from Simon and Garfunkel's "Bridge over Troubled Water".

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.90	.05	-.06
Heavy-Light	-.05	.34	.06
Active-Passive	-.02	.63	-.09
Nice-Awful	.92	-.10	.02
Colourful-Colourless	.53	.16	.22
Hot-Cold	.32	.25	.39
Beautiful-Ugly	.68	-.35	.30
Strong-Weak	.29	.54	.37
Good-Bad	.69	.04	.30
Interesting-Boring	.79	.11	.32
Excited-Calm	-.06	.60	-.10
Valuable-Worthless	.58	-.07	.52
Sensitive-Insensitive	.59	-.23	.37
Masculine-Feminine	.07	.44	.15
Positive-Negative	.56	.19	.39

*Principal Components analysis with varimax rotation.

Factor I An evaluation factor

II An activity factor

III This is some kind of very limited evaluation factor centering on the 'worth' of the music.

Appendix 13 - 8

Factor Analysis* of Semantic Differential Ratings for the 8th Musical Extract from Bach's Brandenburg Concerto No.

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.72	.35	.15
Heavy-Light	-.05	-.22	.48
Active-Passive	.37	.13	.43
Nice-Awful	.72	.52	.13
Colourful-Colourless	.61	.39	.01
Hot-Cold	.65	.05	.32
Beautiful-Ugly	.82	.36	-.01
Strong-Weak	.24	.27	.69
Good-Bad	.72	.50	.11
Interesting-Boring	.49	.64	.23
Excited-Calm	.05	.02	.52
Valuable-Worthless	.42	.77	.09
Sensitive-Insensitive	.38	.59	-.26
Masculine-Feminine	.07	.08	.57
Positive-Negative	.22	.75	.10

*Principal Components analysis with varimax rotation.

Factor I An evaluation factor of the goodness or beauty of the music.

II An evaluation factor of the 'worth' or 'interest' of the music.

III A potency, and to a lesser extent, activity factor.

Appendix 13 - 9

Factor Analysis* of Semantic Differential Ratings for the 9th Musical Extract from Bartok's Miraculous Mandarin Suite.

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.81	.09	-.09
Heavy-Light	.04	-.28	.44
Active-Passive	.14	.55	.06
Nice-Awful	.92	.15	-.04
Colourful-Colourless	.52	.58	.11
Hot-Cold	.42	.59	.10
Beautiful-Ugly	.85	.13	-.10
Strong-Weak	.09	.03	.61
Good-Bad	.86	.21	.07
Interesting-Boring	.69	.12	.27
Excited-Calm	.08	.33	.42
Valuable-Worthless	.72	.25	.28
Sensitive-Insensitive	.63	.32	.19
Masculine-Feminine	-.09	.13	.25
Positive-Negative	.36	.31	.45

*Principal Components analysis with varimax rotation.

Factor	I	Evaluation
	II	Activity
	III	Potency

Appendix 13 - 10

Factor Analysis* of the Semantic Differential Ratings for the Concept "Self".

	Factor Loadings		
	I	II	III
Pleasant-Unpleasant	.70	.23	-.20
Heavy-Light	-.07	-.17	.71
Active-Passive	-.03	.81	-.12
Nice-Awful	.71	.38	.03
Colourful-Colourless	.43	.62	-.21
Hot-Cold	.53	.51	-.19
Beautiful-Ugly	.77	.23	.10
Strong-Weak	.40	.64	.25
Good-Bad	.57	.32	-.09
Interesting-Boring	.48	.67	-.07
Excited-Calm	.39	.05	-.10
Valuable-Worthless	.79	.26	.14
Sensitive-Insensitive	.35	.04	-.27
Masculine-Feminine	.00	.04	.64
Positive-Negative	.33	.43	-.01

*Principal Components analysis with varimax rotation.

Factor	I	An evaluation factor.
	II	An activity factor.
	III	A potency or masculinity factor.

APPENDIX 14

Questionnaire Concerning School Pupils' Musical Experience, Interests and Home Background

Name .....

School .....

Class .....

This is a questionnaire to find out about how musical your background is. It is not a test: there are no right answers and no wrong answers. Please answer all of the following questions. Where several possible answers are provided for you indicate your choice by putting a ring round the answer you select. If a blank space is left after the question, write in your answer: you should ask the teacher if you are not sure how to.

1. Have you ever had private lessons on piano? YES NO

   If 'YES', for how many years? ..... yrs.

   Are you still getting lessons? YES NO

2. Have you ever had lessons on some other instrument? YES NO

   If 'YES', on what instrument? .....

   For how many years? ..... yrs.

   Are you still getting lessons? YES NO

3. Have you ever taught yourself to play some other instrument? YES NO

   If 'YES', which instrument? .....

   For how many years have you played it? ..... yrs.

   Do you still play it? YES NO

4. Have you ever had private lessons in singing? YES NO

   If 'YES', for how long? ..... yrs.

   Are you still getting lessons? YES NO

5. How many years have you played in a school orchestra? ..... yrs.

   How many years have you played in an orchestra organised from outside school? ..... yrs.

6/

Appendix 14 - cont'd

6. Have you ever played in any kind of musical group? (For example, jazz band, pop group, pipe band etc.) YES NO

   If 'YES', what kind of group? .....

   How long have you played with it? ..... yrs.

   Was the group an official school one? YES NO

7. How many years have you sung with a school choir? ..... yrs.

   Are you a member of a school choir now? YES NO

   How many years have you sung with a church choir? ..... yrs.

   Are you still a member of the church choir now? YES NO

   How many years have you sung in some other choir? ..... yrs.

   What choir is it? .....

   Are you still a member? YES NO

8. What musical instruments do you have in your home?

Piano	YES	NO
Guitar	YES	NO
Violin	YES	NO
Accordian	YES	NO
Clarinet	YES	NO
Trumpet	YES	NO
Drums	YES	NO
Bagpipes	YES	NO
Other (please name)	.....	
	.....	
	.....	
Mono record player	YES	NO
Stereo record player	YES	NO
Tape recorder	YES	NO

9. Do your parents play an instrument or sing? YES NO

   If 'YES', which parent(s) and which instrument? .....

10. Do any of your brothers or sisters play an instrument or sing? YES NO

    If 'YES', which? .....

11/

Appendix 14 - cont'd

11. Do members of your family play or sing <u>together</u> in your house?

Never
Seldom
Sometimes
Often

12. How well can you sing? (Tick just one answer - put your tick inside the brackets.)

( ) Can't sing in tune at all.
( ) Can just sing along when others sing.
( ) Can sing in tune by myself.
( ) Can sing solos for small audiences.
( ) Can sing solos for large audiences.

13. How well do you play an instrument? (Tick one answer - for your best instrument.)

( ) Not at all.
( ) Can pick out a tune on one.
( ) Can play simple music.
( ) Can play moderately difficult music.
( ) Can play in recitals or concerts.

If you have taken music exams, what grades have you passed? .....

14. How often do you attend musical events such as concerts of serious music or operas?

( ) Never.
( ) Occasionally.
( ) Fairly often.
( ) As often as possible.

15. How often do you attend musical events such as 'pop' concerts, concerts of folk music etc.?

( ) Never.
( ) Occasionally.
( ) Fairly often.
( ) As often as possible.

16. How musical do you think you are?

( ) Very much below average.
( ) A little below average.
( ) Average.
( ) A little above average.
( ) Very much above average.

17/

Appendix 14 - cont'd

17. For each of the following kinds of music indicate how much you like it by putting a tick in one of the five columns.

	Like very much	Like a bit	Unsure	Dislike a bit	Dislike very Strongly
Symphonies and Concertos					
Opera					
Chamber music					
Military and Brass Band Music					
Music from shows or films					
Latin American music					
Scottish Country Dance Music					
Folk songs					
Pop music					
Traditional Jazz					

18. Name some of the pieces of music you like the best.

....

....

....

....

....

APPENDIX 15

List of the Variables used in the Factor Analyses of the School Pupils' Music Test Results and Questionnaire Data

1. Performance on Test 1 of Wing's tests — Chord Analysis
2. Performance on Test 2 of Wing's tests — Pitch Change
3. Performance on Test 3 of Wing's tests — Memory for Pitch
4. Performance on Test 4 of Wing's tests — Appreciation of Rhythm
5. Performance on Test 5 of Wing's tests — Appreciation of Harmony
6. Performance on Test 6 of Wing's tests — Appreciation of Intensity
7. Performance on Test 7 of Wing's tests — Appreciation of Phrasing
8. Performance on Wing's 'Ability' tests, i.e. Tests 1 - 3
9. Performance on Wing's 'Appreciation' tests, i.e. Tests 4 - 7
10. Performance on Wing's Test, as a whole, i.e. Tests 1 - 7
11. Performance at choosing the 'better' extracts on the Indiana-Oregon Test
12. Performance at identifying variations in rhythm on the Indiana-Oregon Test
13. Performance at identifying variations in harmony on the Indiana-Oregon Test
14. Performance at identifying variations in melody on the Indiana-Oregon Test
15. Performance at identifying the changed element in the Indiana-Oregon Test (i.e. Total of the scores of variables 12, 13 and 14)
16. Performance on the Indiana-Oregon Test (Total scores)
17. Performance on Hoffren's Test of Expressive Phrasing
18. Performance on Martin's Test
19. Whether piano is, or has been, studied
20. Whether an instrument other than piano is, or has been, studied
21. Whether any instrument has been self-taught
22. Membership of a school orchestra
23. Membership of an orchestra other than a school orchestra
24. Membership of a musical group organised outwith school
25. Membership of a school choir
26. Membership of a church choir
27. The Number of musical instruments at home
28. Whether there is a record player at home and, if so, whether it is 'mono' or 'stereo'
29. Whether there is a tape recorder at home
30. Whether neither parent, one parent, or both parents play an instrument or sing
31. Whether sibling(s) play a musical instrument or sing
32. Extent of family music making
33. Self-assessment of singing ability
34. Self-assessment of playing on an instrument
35. Frequency of attendance at concerts of serious (orchestral) music
36. Frequency of attendance at concerts of pop or folk music
37. Self-assessment of musicality
38. Extent of taste for orchestral music
39. Extent of taste for opera
40. Extent of taste for chamber music
41. Extent of taste for brass band music
42. Extent of taste for music from 'shows'
43. Extent of taste for Latin-American music
44. Extent of taste for Scottish music
45. Extent of taste for 'folk' music
46. Extent of taste for pop music
47. Extent of taste for jazz

Appendix 15 - cont'd

It might be noted that variables 19 to 47 present data from the questionnaire done by the school pupils. (See Appendix 14.) The sequence of the variables reflects the structure of the questionnaire. Variables 38 - 47 present what was described as "the taste data" in Chapter 8 and later chapters.

Not all the data from the questionnaire was used for the factor analyses and consequently the list of variables presented in this appendix is not a full list of all the variables used when considering the school pupils appreciation of music and how personality relates to this.

The numbering of the variables employed above is retained in Appendices 16 and 17.

APPENDIX 16

Correlation matrix for the music test results and the questionnaire data of the school pupils

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2	59											
3	59	68										
4	30	37	41									
5	48	59	53	29								
6	37	47	47	38	43							
7	26	29	23	24	44	24						
8	81	91	86	42	63	51	30					
9	50	60	58	67	79	72	65	66				
10	75	86	81	58	76	64	48	95	86			
11	44	50	53	27	45	27	27	58	46	60		
12	30	46	35	22	35	25	36	45	42	48	42	
13	54	59	54	33	52	38	39	66	59	70	58	56
14	38	41	44	24	31	33	23	48	39	49	61	48
15	50	59	54	32	49	39	40	65	57	68	64	81
16	52	61	59	33	52	37	38	68	57	71	88	70
17	41	49	55	26	50	43	40	59	57	65	51	46
18	39	41	49	24	53	18	09	51	37	51	51	27
19	46	44	47	16	29	23	22	52	32	51	32	29
20	18	25	21	18	15	24	20	24	26	26	16	11
21	34	25	31	02	26	11	08	34	18	28	19	13
22	38	43	41	33	36	42	30	47	49	50	32	31
23	28	40	40	28	38	40	26	42	46	47	25	17
24	21	15	21	03	18	08	01	21	11	22	06	03
25	36	36	43	19	32	16	23	44	32	44	29	22
26	22	15	10	16	18	07	17	19	20	25	11	18
27	44	53	53	29	44	47	23	58	51	59	28	28
28	00	05	06	09	16	08	17	05	17	08	07	11
29	11	08	01	03	-04	07	06	08	04	07	-03	-07
30	29	43	43	22	48	36	22	45	44	50	30	28
31	28	33	41	27	29	32	29	39	38	38	20	22
32	28	32	31	18	23	28	14	35	29	40	27	29
33	32	26	27	19	34	16	32	32	35	45	36	30
34	41	41	48	24	40	32	30	50	44	51	43	26
35	27	34	38	31	30	32	31	38	43	43	26	09
36	01	-06	01	-09	11	01	06	-01	03	-01	-03	03
37	38	48	45	25	44	26	25	51	43	57	60	30
38	42	54	46	22	46	28	25	56	43	56	47	26
39	39	37	35	22	38	28	29	43	41	49	35	18
40	41	42	44	24	36	27	23	49	39	48	33	18
41	10	17	13	13	18	18	23	15	25	24	17	19
42	06	15	09	14	14	23	20	12	24	19	19	23
43	-02	12	05	-01	15	24	04	07	15	13	15	05
44	09	21	21	13	25	34	07	21	28	25	02	-07
45	15	27	24	12	17	21	10	26	21	26	13	06
46	-10	-09	-09	-13	-16	-05	-18	-10	-18	-16	-09	03
47	15	11	08	16	13	21	02	14	19	17	18	11

Decimal points have been omitted.

The variables are numbered as in Appendix 15.

Appendix 16 - cont'd

	13	14	15	16	17	18	19	20	21	22	23	24
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14	59											
15	88	80										
16	82	79	93									
17	53	51	59	60								
18	45	36	43	49	39							
19	37	26	38	39	27	22						
20	21	21	21	20	26	12	15					
21	14	18	18	20	30	19	08	12				
22	35	32	39	39	38	33	26	43	15			
23	26	17	25	27	35	31	17	35	17	64		
24	23	07	14	12	23	36	12	26	26	17	23	
25	30	28	32	33	19	39	43	25	29	30	26	16
26	18	22	23	19	21	14	20	02	14	13	15	08
27	42	31	41	39	50	32	43	39	27	46	39	38
28	11	05	11	10	14	16	03	16	09	18	25	08
29	02	-01	-02	-03	-09	-11	04	03	00	-05	-03	-07
30	33	25	34	34	33	29	37	23	24	37	31	36
31	29	19	28	27	33	14	33	38	23	40	35	24
32	32	39	39	37	34	22	26	12	25	23	16	26
33	40	37	43	44	34	29	21	16	27	16	12	15
34	41	37	42	46	44	37	37	47	48	57	44	42
35	22	24	22	26	32	36	31	17	26	35	39	15
36	-10	03	-03	-03	-03	14	01	-03	25	-04	03	07
37	42	40	45	52	42	32	33	28	25	42	36	25
38	43	38	43	49	41	41	36	20	22	33	38	14
39	33	29	32	37	45	29	32	20	24	30	34	12
40	35	28	33	36	32	32	35	20	20	37	45	08
41	20	17	23	22	30	06	14	20	09	30	31	09
42	10	30	23	23	26	09	14	10	12	16	22	-01
43	00	11	06	11	10	-02	08	19	09	08	12	00
44	13	04	05	05	23	04	08	19	17	18	27	02
45	19	17	17	17	06	02	05	12	09	02	08	03
46	-05	07	01	-03	-19	-24	-06	-06	-04	-12	-21	-16
47	19	21	20	21	07	18	06	07	07	04	00	02

Appendix 16 - cont'd

	25	26	27	28	29	30	31	32	33	34	35	36
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26	31											
27	34	15										
28	09	13	24									
29	-10	-18	07	11								
30	36	17	67	20	-13							
31	40	16	68	38	01	54						
32	30	17	53	16	00	44	44					
33	41	35	29	15	-14	35	38	40				
34	44	18	57	12	-05	44	46	43	32			
35	34	23	38	17	11	40	38	33	37	47		
36	13	13	-01	10	12	06	10	15	08	10	21	
37	35	20	45	13	-08	50	41	39	55	55	45	00
38	29	13	36	14	07	37	30	24	24	44	44	01
39	38	19	33	02	-10	30	33	33	35	43	50	05
40	34	16	38	08	01	37	33	32	27	42	53	08
41	06	16	22	12	-13	27	14	13	17	29	19	04
42	18	31	21	12	-08	19	25	24	22	19	19	15
43	17	03	17	04	-17	19	09	19	13	17	12	07
44	20	14	21	09	-12	17	18	20	08	31	25	18
45	23	11	16	03	01	09	13	08	09	14	11	12
46	01	-04	-12	05	10	-23	-08	-11	-12	-20	-35	31
47	10	-06	10	-01	05	17	09	10	06	09	15	22

Appendix 16 - cont'd

	37	38	39	40	41	42	43	44	45	46
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38	52									
39	46	55								
40	42	62	60							
41	27	24	23	22						
42	23	20	15	21	25					
43	20	12	13	19	12	36				
44	18	19	30	25	24	18	22			
45	08	21	18	16	05	10	18	36		
46	-22	-29	-31	-29	-15	06	-01	-01	19	
47	08	05	07	07	07	20	14	14	02	10

APPENDIX 17

Factor Analyses of all the Music Data

Principal Components analysis with Varimax Rotation

	1	2	3	4	5	6	7	8	9	10	11	12
1 Wing 1	.01	.06	.02	.34	-.06	-.03	.07	.13	.01	-.06	-.11	.00
2 Wing 2	.03	-.03	.05	.30	.04	-.02	-.05	-.05	.01	-.01	.10	.06
3 Wing 3	.01	-.01	.00	.32	.04	-.01	-.01	.00	.03	.10	.05	.01
4 Wing 4	-.06	.00	.31	.13	-.01	.09	.10	-.24	.09	.05	-.13	-.08
5 Wing 5	.00	-.03	.30	.09	.00	-.03	-.01	.04	-.11	.26	.11	.01
6 Wing 6	-.09	-.01	.31	.13	.08	.21	-.15	-.02	.06	-.10	.09	-.05
7 Wing 7	.06	.10	.41	-.13	-.03	-.17	.09	.06	.00	-.20	-.07	.09
8 Total (1-3)	.02	.01	.04	.37	.01	-.02	.00	.02	.01	.02	.03	.04
9 Total (4-7)	-.04	.01	.46	.08	.01	.04	.00	-.05	.01	.03	.01	-.01
10 Total (1-7)	.00	-.02	.22	.27	.01	.01	.02	.01	-.02	.02	.01	.03
11 Ind-Or	.14	-.03	-.08	.04	-.07	.08	-.05	-.05	.01	.16	-.02	.31
12 Ind-Or Rhythm	-.10	.00	.08	-.04	.03	-.04	.07	.00	.00	-.08	-.06	.36
13 Ind-Or Harmony	-.03	-.03	.06	.10	.02	-.08	-.04	.00	-.03	.04	.03	.30
14 Ind-Or Melody	.04	.05	-.09	-.01	-.04	.11	.01	.04	.03	-.04	.00	.39
15 Total (12-14)	-.04	.00	-.03	.03	.01	-.02	.01	.01	.00	-.03	-.01	.41
16 Total (11+15)	.04	-.01	-.02	.04	-.03	.03	-.02	-.01	.00	.06	-.01	.41
17 Hoffren	.01	-.11	.20	-.03	.01	-.06	-.09	.25	.01	-.02	.04	.18
18 Martin	.05	.01	-.03	.06	-.08	.03	.05	-.01	.04	.61	-.10	.06
19 Studied piano	.09	.02	-.15	.28	.12	.03	.21	-.12	.02	-.21	-.16	-.01
20 Other	-.06	.00	-.11	.00	.10	.02	-.05	.07	.48	-.10	.03	.03
21 Self-taught	-.01	.15	-.02	.06	-.03	-.03	.04	.58	-.05	.00	.03	-.04
22 School Orchestra	-.02	-.02	.04	.04	-.03	.01	.05	-.01	.51	.00	-.10	.02
23 Other	.10	.01	.10	-.03	-.07	-.04	.01	-.03	.45	.14	.05	-.06
24 Music Group	-.16	-.11	-.08	.03	.22	-.07	-.07	.36	.07	.29	-.06	-.06
25 School Choir	.03	.06	-.17	.19	.05	.05	.45	-.07	.09	.07	.02	-.06
26 Church Choir	-.04	-.03	.11	-.04	-.07	-.09	.59	.02	-.01	-.03	.02	-.01
27/												

		1	2	3	4	5	6	7	8	9	10	11	12
27	Instruments home	-.06	-.01	.01	.12	.43	.01	-.08	.04	.06	-.05	.01	-.03
28	Kind Record Player	.02	.27	.08	-.30	.30	-.25	-.01	-.25	.12	.30	.19	.09
29	Tape Recorder	.12	.56	.03	.09	.05	-.12	-.31	-.03	.00	-.22	-.13	.01
30	Parents Play Sing	.00	-.13	.04	.02	.41	.09	.01	-.01	-.07	.11	-.03	-.05
31	Siblings Play Sing	.01	.11	.00	-.02	.45	-.06	.09	-.09	.09	-.07	.01	-.04
32	Extent Family Music Making	.05	.03	-.03	-.03	.37	.09	.00	.15	-.19	-.09	-.02	.07
33	Self-assessment singing	.08	-.05	.08	-.10	.17	-.05	.30	.08	-.21	.01	-.05	.11
34	Self-asst. instrument	.07	.00	-.09	.04	.07	.02	.03	.32	.26	-.03	-.03	.02
35	Attend concerts	.36	.18	.12	-.04	.05	.06	.08	.03	.00	.05	-.14	-.13
36	Attend pop/folk	-.01	.51	.04	-.09	-.09	.15	.15	.25	-.06	.17	.08	-.06
37	Self-asst. musicality	.21	-.11	-.05	-.01	.16	.02	.05	.04	.01	.03	-.02	.09
38	Taste orchestral	.43	.02	-.07	.04	-.01	-.07	-.12	-.07	.01	.08	.11	.09
39	Opera	.40	-.06	.02	.03	-.05	-.01	.06	.11	-.04	-.08	.05	-.02
40	Chamber	.45	.04	-.06	.06	-.02	.04	.01	-.07	.06	-.02	.03	-.03
41	Brass Band	.10	-.18	.14	-.20	-.05	.02	-.01	.17	.22	-.18	.07	.09
42	Shows	.05	.05	.08	-.20	.03	.31	.22	-.04	.08	-.13	.03	.10
43	Latin	.07	-.15	-.05	-.08	.11	.50	-.03	-.06	-.01	-.04	.18	.00
44	Scottish	.08	-.05	.12	.01	-.05	.12	.00	.15	.05	-.03	.47	-.14
45	Folk	.03	.04	-.05	.13	.01	-.06	.02	-.07	-.08	-.02	.64	.02
46	Pop	-.33	.33	-.17	.08	-.04	.07	.13	-.06	.08	-.09	.27	.15
47	Jazz	-.06	.18	.05	.00	-.02	.60	-.10	.00	-.03	.14	.17	.03

Principal Components analysis with 'oblique' rotation (Factor pattern)

	1	2	3	4	5	6	7	8	9	10	11	12
1	-04	01	-03	01	02	00	08	02	01	00	09	40
2	05	07	-08	16	04	06	-09	-06	-02	00	-05	21
3	05	03	-07	12	05	02	-10	-02	11	03	-01	24
4	00	-06	11	24	-05	-08	15	08	08	09	-29	10
5	00	01	-04	35	-02	00	03	04	23	-10	05	-04
6	08	-04	18	37	-02	-08	01	-14	-11	06	-03	06
7	-03	07	-08	21	-05	03	43	09	-17	01	03	-08
8	02	05	-07	13	05	04	-05	-03	04	01	00	30
9	01	00	05	41	-05	-05	20	02	03	01	-08	01
10	02	04	-02	25	-02	00	05	02	04	-02	-02	21
11	-07	32	07	-04	-02	14	-08	-05	16	01	-05	00
12	03	36	-01	00	-01	-12	11	07	-07	00	-02	-02
13	02	30	-10	08	00	-03	00	-02	03	-02	00	03
14	-04	39	12	-09	06	04	-03	-01	-03	03	05	01
15	01	41	-01	01	02	-04	03	01	-02	00	01	01
16	-03	41	03	-01	00	04	-02	-01	05	00	-02	01
17	00	17	-05	17	-15	-01	07	-03	-04	02	23	-04
18	-08	08	04	00	-01	05	-07	06	62	06	00	-03
19	14	00	02	-17	03	09	02	13	-14	03	-17	37
20	10	03	00	-07	04	-05	-07	-07	-10	47	07	-01
21	-02	-05	00	-02	09	-02	09	02	03	-03	58	14
22	-02	03	02	-01	-03	-03	06	03	04	52	-05	05
23	-07	-06	-04	11	01	10	03	02	13	45	-03	-10
24	22	-06	-09	-05	-11	-19	-10	-03	29	09	35	01
25	06	-05	03	-11	19	04	-10	39	09	09	-07	22
26	-08	-02	-06	03	06	-06	09	59	-02	01	00	04
27	43	-03	-02	06	00	-06	-03	-09	-05	-06	03	06
28	29	08	-21	07	31	07	13	-02	23	11	-17	-51
29	07	01	-03	-08	31	16	43	-46	13	02	00	10
30	41	-05	06	07	-12	-02	-08	03	10	-06	-03	-03
31	46	-04	-05	-02	12	02	08	05	-06	09	-08	-07
32	37	06	10	-04	-01	04	02	-01	-09	-19	14	00
33	16	10	-01	-01	-05	04	10	32	02	-20	06	-04
34	07	01	03	-08	-03	05	00	02	00	27	30	10
35	06	-13	13	01	01	34	26	02	10	00	01	02
36	-08	-06	23	02	44	02	22	06	20	-06	32	-06
37	16	09	01	-05	-11	19	-05	06	02	01	03	-01
38	-01	08	-09	00	02	45	-05	11	05	00	-03	-05
39	-05	-04	-02	03	-09	39	02	07	-08	-04	10	06
40	-02	-04	03	-04	01	46	00	-02	-01	05	-06	05
41	-06	08	02	09	-19	07	02	06	-21	22	15	-15
42	02	10	34	04	06	04	03	20	-13	07	-04	-12
43	10	00	44	12	-03	08	-33	00	-10	-03	-04	-10
44	-07	-15	03	34	14	13	-24	06	-14	04	21	-10
45	-01	01	-20	28	37	14	-36	06	-16	-11	04	-10
46	-03	15	05	-03	52	-25	-11	05	-11	06	02	03
47	-01	05	63	05	06	-07	01	-17	20	-04	-01	07

Rao's Analysis with Varimax Rotation

	1	2	3	4	5	6	7	8	9	10	11	12
1	.72	.24	.09	.13	.03	.06	.08	.15	.20	.02	-.11	-.12
2	.82	.26	.03	.12	.07	-.09	.11	.14	.19	.00	.16	.18
3	.73	.25	.18	.19	.15	.05	.02	.15	.19	.10	.06	-.03
4	.25	.13	.81	.09	.02	-.06	.12	.13	.15	.04	-.02	.03
5	.43	.19	.01	.17	.30	.04	.74	.09	.17	.05	.19	.00
6	.35	.21	.37	.11	.03	.01	.11	.28	-.01	-.19	.66	-.12
7	.07	.24	.29	.09	-.21	.03	.51	.16	.32	.01	.02	.10
8	.87	.30	.11	.16	.10	.01	.09	.16	.22	.04	.07	.04
9	.39	.28	.50	.16	.07	.01	.55	.23	.21	-.02	.30	.00
10	.74	.33	.28	.17	.10	-.01	.29	.18	.26	.03	.17	.02
11	.31	.58	.06	.03	.18	-.02	.06	.10	.20	.66	.14	-.03
12	.19	.67	.06	.12	.00	.03	.15	.09	.04	-.06	.01	.61
13	.38	.78	.08	.16	.07	-.07	.21	.09	.17	-.10	-.08	-.16
14	.18	.77	.03	.09	.07	.08	.06	.12	.16	.08	.17	-.02
15	.31	.88	.07	.15	.05	.01	.14	.12	.15	-.04	.03	.15
16	.35	.83	.07	.10	.10	.00	.12	.12	.18	.30	.08	.07
17	.34	.39	.11	.24	.11	-.06	.17	.14	.24	.06	.20	.06
18	.27	.26	.08	.15	.83	.10	.07	.09	.22	.10	-.09	-.01
19	.43	.18	.02	.25	-.07	.01	.00	.06	.26	.05	-.01	.04
20	.09	.09	.05	.30	-.04	-.03	-.01	.39	.11	.01	.06	-.06
21	.26	.03	-.13	.21	.01	.25	.04	.06	.25	.06	.02	.00
22	.21	.16	.09	.21	.09	-.03	.08	.86	.13	.03	.04	.07
23	.23	.02	.09	.16	.14	-.01	.11	.57	.26	.00	.16	.02
24	.12	.04	-.04	.40	.26	.03	-.02	.07	.13	-.11	-.12	-.14
25	.28	.13	.04	.23	.12	.15	.05	.14	.34	.04	-.07	.02
26	.08	.13	.07	.10	-.03	.12	.08	.02	.28	-.06	-.04	.07
27	.38	.13	.08	.83	.04	-.07	.04	.17	.10	-.03	.21	-.02
28	-.09	.05	.06	.30	.08	.08	.12	.12	.05	.03	.01	.06
29	.15	-.04	.09	.02	-.16	.14	-.05	-.06	-.07	-.03	.01	-.09
30	.25	.09	-.02	.57	.08	-.03	.16	.12	.25	.05	.22	.09
31	.17	.07	.09	.65	-.12	.06	.05	.22	.23	.03	.09	.03
32	.16	.25	.04	.46	-.01	.11	-.07	.00	.29	-.01	.18	.05
33	.11	.31	.09	.22	.01	.06	.16	-.06	.45	.07	.00	.01
34	.22	.21	-.01	.41	.06	.07	.06	.42	.40	.14	.06	-.08
35	.13	.01	.20	.22	.14	.13	-.03	.17	.66	-.01	.20	.01
36	-.05	-.07	-.06	.07	.07	.93	.06	-.04	.11	-.01	.09	.06
37	.28	.24	-.03	.26	.02	-.06	.11	.19	.49	.19	.11	.04
38	.35	.22	-.06	.10	.15	-.07	.08	.13	.53	.09	.16	.01
39	.22	.13	.02	.12	.04	-.02	.09	.13	.64	.04	.17	-.06
40	.28	.11	-.01	.14	.07	.01	.02	.20	.59	.00	.14	-.03
41	-.01	.14	.01	.12	-.07	-.09	.10	.25	.25	.00	.13	.07
42	-.05	.17	.08	.14	-.02	.12	.01	.08	.19	.04	.30	.17
43	.01	.01	-.08	.09	-.05	.03	.04	.04	.12	.10	.42	.03
44	.14	-.06	-.01	.06	-.04	.14	.10	.16	.23	-.14	.31	-.19
45	.25	.10	.01	.02	-.12	.15	.04	-.04	.08	-.04	.17	-.11
46	.03	.13	-.11	-.05	-.24	.44	-.07	-.03	-.49	-.01	-.02	-.02
47	.04	.20	.13	.04	.10	.24	-.02	-.04	.01	.10	.18	-.08

Rao's Analysis with 'oblique' rotation (Factor pattern)

	1	2	3	4	5	6	7	8	9	10	11	12
1	52	13	09	-01	04	14	04	14	09	05	-14	-25
2	78	07	13	05	05	05	-07	09	03	02	11	11
3	56	04	02	12	10	20	03	11	20	02	-07	-04
4	06	-08	07	00	01	07	-09	07	84	11	06	-11
5	19	00	86	23	07	09	06	-03	-07	-12	-08	06
6	18	23	10	07	03	-18	-10	27	37	-14	-26	51
7	-14	08	53	-27	-04	05	04	09	22	16	09	-06
8	73	10	11	07	06	15	00	12	12	06	-01	-04
9	09	08	58	03	03	02	-03	11	45	-02	-07	14
10	53	11	31	06	05	12	-03	10	27	01	-04	03
11	04	09	03	09	-11	91	-03	03	07	-07	00	10
12	27	47	10	-01	03	-05	09	05	03	-07	69	14
13	07	77	22	03	07	11	-15	03	02	09	-11	-23
14	-01	66	-12	04	-02	28	03	09	01	10	01	11
15	13	76	11	02	04	13	-02	07	02	-01	21	-02
16	10	51	09	03	-03	53	-03	06	04	-04	12	04
17	17	23	16	07	16	15	-08	07	09	06	03	13
18	14	08	08	79	05	19	16	05	08	10	03	-13
19	34	06	00	-10	21	12	00	03	02	24	03	-05
20	-04	06	-05	-07	21	03	-05	42	03	-01	-06	-01
21	18	-05	05	-02	14	10	27	06	-14	12	-04	-02
22	07	03	00	05	-05	03	02	96	05	-11	07	-05
23	12	-08	08	11	-03	-01	03	61	06	-02	-03	08
24	00	09	-01	24	41	07	02	05	-06	-07	-12	-18
25	17	01	04	07	13	10	18	13	03	22	01	-12
26	02	10	08	-04	03	-04	14	00	05	23	08	-06
27	20	03	03	01	87	-01	-13	07	08	-12	-05	13
28	-17	-03	11	06	26	02	09	09	04	-04	08	01
29	11	-02	-05	-15	04	-01	10	-05	11	-07	-12	-04
30	14	-06	18	03	55	05	-04	03	-04	05	05	19
31	01	-05	02	-17	62	05	03	17	07	05	02	03
32	06	18	-10	-03	44	05	07	-06	04	18	04	16
33	-06	18	16	-04	15	17	05	-14	06	35	02	-04
34	-01	05	03	-01	25	23	08	42	-05	17	-09	-04
35	01	-08	-06	10	08	02	16	14	19	60	-08	14
36	-07	-11	06	07	-06	-04	97	-01	-04	02	00	06
37	12	03	11	-05	15	29	-04	14	-06	30	01	06
38	24	08	09	10	-02	19	-04	08	-09	41	-05	11
39	08	02	09	-02	00	12	-01	09	-01	55	-12	09
40	17	04	01	03	02	07	04	19	-04	49	-09	06
41	-07	09	08	-10	03	02	-07	24	-03	17	05	11
42	-06	07	-03	-02	08	04	13	05	08	12	14	32
43	-01	-06	05	-05	07	10	01	00	-09	02	-05	42
44	03	04	13	-04	-01	-14	11	16	-04	15	-30	18
45	17	11	06	-11	01	00	10	-06	01	02	-17	09
46	04	17	-08	-21	-04	01	39	03	-08	-54	-01	-03
47	-06	17	03	11	01	07	20	-06	14	-04	-10	13

APPENDIX 18

Factor Loadings from the Factor Analysis of the School Data Using Rao's Factorisation - Before Rotation

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	71	17	32	-04	-07	-05	-03	04	-03	14	08	-17
2	82	20	31	-11	-11	-03	01	-06	12	-08	-05	11
3	78	19	30	03	01	02	-05	07	-09	-03	02	-05
4	51	27	-26	-05	-14	23	00	35	-30	-06	-25	-21
5	74	29	-25	27	02	-26	15	-28	16	01	06	-01
6	59	32	-26	-17	01	18	-15	11	-11	-20	32	33
7	48	10	-45	-06	-06	03	-08	-03	14	24	-21	-14
8	91	20	34	-04	-07	-03	-03	01	01	00	01	-02
9	82	33	-44	02	-05	05	-02	03	-03	-01	-01	-01
10	96	26	05	-01	-08	00	-01	01	-02	01	-01	00
11	72	-38	08	45	-01	29	-10	-07	01	-05	-01	-02
12	62	-42	-14	-30	00	-21	-02	02	20	-25	-31	04
13	81	-30	-06	-16	-03	-10	17	-01	-13	21	17	-09
14	65	-47	-04	-05	09	03	-11	07	-08	04	14	13
15	84	-46	-10	-21	01	-12	03	03	-01	02	01	01
16	87	-47	-02	08	-01	08	-04	-03	00	-01	01	-01
17	68	-01	-05	-01	13	06	03	-03	00	02	-03	10
18	56	04	13	49	29	-32	30	27	00	13	-02	05
19	49	07	22	-10	10	04	-07	-07	-16	-11	-11	-04
20	28	08	-02	-12	32	20	00	11	13	06	09	-07
21	28	09	17	06	22	-12	-21	-08	07	14	-03	-02
22	53	13	-06	-07	34	22	07	41	47	-04	16	-12
23	45	26	-04	04	26	13	02	27	30	04	07	06
24	21	09	13	01	40	-13	17	02	-14	10	05	-08
25	44	08	12	07	22	-09	-07	08	02	17	-11	-05
26	24	00	-06	-04	09	-11	-09	06	00	18	-16	00
27	59	26	09	-25	60	16	05	-22	-14	-09	-01	-05
28	13	02	-16	01	31	-02	00	-01	02	-04	-07	-09
29	02	11	07	-10	-07	00	-19	-03	-12	00	07	-10
30	50	19	00	-05	45	06	02	-22	03	00	-13	08
31	41	18	-01	-20	52	16	-12	-11	00	08	-12	-12
32	42	-03	03	-14	38	03	-16	-09	-14	08	-12	12
33	45	-09	-09	05	15	-04	-06	-07	-09	29	-22	03
34	56	06	04	05	46	15	-07	08	16	23	01	-05
35	41	23	-03	13	33	05	-17	23	-06	32	-22	25
36	00	06	-08	21	27	-53	-70	07	-02	00	03	-07
37	58	01	06	09	23	15	-03	-06	14	25	-16	10
38	58	05	13	15	12	04	02	01	10	27	-11	26
39	48	12	01	11	16	08	-06	04	06	41	-15	25
40	48	14	10	07	21	05	-06	10	09	35	-11	23
41	25	00	-14	-07	15	14	00	04	19	14	-06	11
42	23	-06	-17	-03	19	05	-22	02	03	-04	-11	21
43	13	06	-09	05	13	13	-18	-17	09	04	03	29
44	20	28	-08	-01	12	-01	-18	00	04	19	20	20
45	24	09	04	-06	-06	-04	-21	-09	-07	08	12	07
46	-13	-18	04	-17	-09	-18	-40	-10	00	-26	-27	-27
47	20	-06	-09	07	06	-08	-20	05	-19	-06	11	07

APPENDIX 19

Second Supplementary Factor Analysis used to Investigate the Factorial Structure of 'Singing' Activities

	Factor* 1	Factor 2	Factor 3	Factor 4
Performance on Wing 'Ability' Tests	-.86	.00	-.28	-.21
Performance on Wing 'Appreciation' Tests	-.70	-.05	-.09	.07
Discrimination of better extract on Indiana-Oregon Test	-.69	.00	-.16	.24
Identification of changed element on Indiana-Oregon Test	-.78	.12	-.10	.28
Whether piano is studied	-.54	.01	-.02	-.26
Membership of school choir	-.56	.13	.26	-.28
Membership of church choir	-.35	.07	.54	-.06
Possession of a tape recorder	.03	.06	-.34	-.10
Self-assessment of singing	-.53	-.01	.34	.12
Taste for Orchestral music	-.62	-.20	-.14	-.09
Taste for music from shows	-.31	.14	.24	.16
Taste for 'folk' music	-.26	.21	-.02	-.13
Taste for 'pop'	.16	.95	-.09	-.02
Taste for jazz	-.19	.14	-.10	.20

*These factor loadings are from a principal components analysis with varimax rotation.

APPENDIX 20

Supplementary Factor Analysis Concerning Self-initiated Interest and/or Ability

	Factor* 1	Factor 2	Factor 3	Factor 4	Factor 5
Performance on Wing 'Ability' Tests	.52	.24	-.19	-.04	-.75
Performance on Wing 'Appreciation' Tests	.07	-.14	.08	.06	.06
Discrimination of better version (Indiana-Or.)	.14	-.13	-.02	.03	.12
Identification of changed element (Indiana-Or.)	.36	-.15	.01	.22	.24
Whether an instrument is self-taught	-.03	.16	.33	-.15	.09
Membership of a musical 'group'	-.09	.40	-.06	-.05	.01
Self-assessment of instrumental playing	.02	.37	.08	.01	-.07
Attendance at Folk/Pop concerts	-.02	-.01	.38	-.02	-.07
Self-assessment of musicality	-.10	-.04	-.12	.37	.33
Possession of a tape recorder	.00	-.06	.09	.04	-.21
Parents play or sing	-.08	.20	-.10	.15	.11
Self-assessment of singing	-.01	-.05	.11	.06	.28
Studies/Studied piano	-.05	-.03	-.08	.14	.00
Attendance at serious concerts	-.09	-.12	.22	.40	-.12
Taste for orchestral music	.04	-.06	-.01	.17	-.13

*The factor loadings are from a principal components analysis with varimax rotation.

APPENDIX 21

A Simple Analysis of the Correlation Matrix of the Test Data

The purpose of this analysis is to consider whether the factorial structure of the test and questionnaire data is seriously invalidated by the inclusion (among the variables for the factor analyses) of variables such as "Performance on Wing 'Ability' Tests" which in effect duplicate data already included for analysis - a problem that was discussed in Chapter 8 (p.).

In this analysis we seek to provide evidence to support the belief that the findings in Chapter 8 are reasonable. Only the findings relating to the test factors are under scrutiny: there was no unjustifiable use of questionnaire data.

Four tests were used, Wing's, Hoffren's, Martin's and the Indiana-Oregon test. From the factor analysis it was found that there were factors for:-

(i) Performance on the Wing 'Ability' Tests
(ii) Performance on the Wing 'Appreciation' Tests
(iii) Performance on the Indiana-Oregon Test
(iv) Performance on Martin's Test.

No factor of performance on Hoffren's test was found, but there were reasonably high loadings for this test on the above four factors.

The method of presenting appropriate evidence can be illustrated by reference to the factor of performance on Wing's 'Ability' Tests. If there is justification for a separate factor, then the intercorrelations between the three separate 'ability' tests, i.e. Tests 1, 2 and 3, should be relatively high and the correlation coefficients of these three tests with the other measures of musical ability or appreciation should be relatively low. To show if this is the case Table A (below) presents two frequency distributions to indicate the magnitude of two sets of correlation coefficients. It might be noted that those variables which provide 'totals', i.e. variables 8, 9, 10, 15 and 16 (see Appendix 15) have been excluded throughout this analysis.

Table A/

Appendix 21 - cont'd

Magnitude of the Correlation Coefficients	Wing Ability Tests with Wing Ability Tests	Wing Ability Tests with Other Tests (excluding Hoffren's)
.65 - .69	1	
.60 - .64	-	-
.55 - .59	2	2
.50 - .54		5
.45 - .49		5
.40 - .44		5
.35 - .39		4
.30 - .34		3
.25 - .29		2
.20 - .24		1

TABLE A FREQUENCY DISTRIBUTIONS OF THE CORRELATION COEFFICIENTS OF THE WING 'ABILITY' TESTS

It is very evident here that intercorrelations of the Wing 'ability' tests are much higher than the correlations with the other tests (all equal or exceed .59). This consequently tends to support the factor analysis results.

To deal with the factors concerning "Performance on Wing's 'Appreciation' Tests" and "Performance on the Indiana-Oregon Test", similar tables have been prepared.

Table B/

Appendix 21 - cont'd

Magnitude of the Correlation Coefficients	Wing Appreciation Tests with Wing Appreciation Tests	Wing Appreciation Tests with Other Tests (excluding Hoffren's)
.55 - .59		1
.50 - .54		3
.45 - .49		3
.40 - .44	2	2
.35 - .39	1	5
.30 - .34	-	5
.25 - .29	1	6
.20 - .24	2	5
.15 - .19		1
.10 - .14		-
.05 - .09		1

TABLE B FREQUENCY DISTRIBUTIONS OF THE CORRELATION COEFFICIENTS OF THE WING 'APPRECIATION' TESTS

The evidence here does not lend support to an independent factor of performance on the Wing Appreciation Test. It might be noted that all the high correlation coefficients (in both columns) result from Wing's Test 5 (Appreciation of Harmony). Tests 4, 6 and 7 all tend to give low correlation coefficients, and these Wing Appreciation Tests therefore do not align with the other factors. What the pattern of correlation coefficients does suggest is a complex (factorial) structure to the Wing 'Appreciation' Tests. This is congruent with some of the findings presented in Chapter 8 (p.138).

Table C/

Appendix 21 - cont'd

	Indiana-Oregon with Indiana-Oregon	Indiana-Oregon with Others (excluding Hoffren's)
.60 - .64	1	-
.55 - .59	3	1
.50 - .54	-	6
.45 - .49	1	1
.40 - .44	1	5
.35 - .39		5
.30 - .34		6
.25 - .29		5
.20 - .24		3

TABLE C FREQUENCY DISTRIBUTIONS OF THE CORRELATION COEFFICIENTS OF THE INDIANA-OREGON TESTS

The results in the above table suggest that there is an underlying consistency in the several 'part scores' of the Indiana-Oregon Test. This supports the factor analytic evidence presented in Chapter 8.

It is not possible to make the kind of comparisons in Tables A, B and C to establish a 'factor' concerned with the variable "Performance on Martin's Test". A factor could possibly be justified if there is little overlap between the Martin test and any of the other measures of musical ability: this would be revealed by relatively low correlation coefficients. Since this test could align with one of the justifiable factors, such as that for the Wing Ability tests, or the Indiana-Oregon tests, Table D gives sufficient breakdown of the correlation coefficients to reveal any such alignment.

Table D/

Appendix 21 - cont'd

	Martin with Wing Ability	Martin with Wing Appreciation	Martin with Indiana-Oregon	Martin with Hoffren
.50 - .54		1	1	
.45 - .49	1			
.40 - .44	1		1	
.35 - .39	1		1	1
.30 - .34				
.25 - .29			1	
.20 - .24		1		
.15 - .19		1		
.10 - .14				
.05 - .09		1		

TABLE D FREQUENCY DISTRIBUTIONS OF THE CORRELATION COEFFICIENTS OF THE MARTIN TEST WITH THE OTHER TESTS

The evidence here shows that the level of correlation is not markedly higher for any one set of tests than for any other, and so the Martin test does not align with any of the established factors. However, the median correlation coefficient is of the order .35 to .39. It might be argued that this is not low enough to justify a separate and independent factor for this test. This is especially so since the two factors which are already clearly established are for "Performance on the Wing Ability Tests" and for "Performance on the Indiana-Oregon Test", and it is with 7 measures for these two factors that the correlation coefficients are highest. There is little doubt that the evidence in support of a factor "Performance on the Martin Test" is weak, though one further comparison does lend a little support for the existence of a factor. This is a comparison of the correlation coefficients with the Martin test and the correlation coefficients with Hoffren's Test. This can best be described later after presenting our findings regarding Hoffren's Test.

Appendix 21 - cont'd

In Tables A, B and C, the correlation coefficients with Hoffren's test have been deliberately excluded, since there was no "Hoffren factor" and since scores on this test load on to all the test factors. It might be asked whether there would have been a factor especially associated with Hoffren's test had the factorisation not been suspect. If there were, then it would imply that what is covered by this test overlaps little with what is covered by other tests. (The same reasoning as with the Martin test.) This would be revealed by low correlation coefficients with the other music test results.

An alternative possibility is that this test contributes to one of the established factors. This would be revealed by consistently high correlation coefficients with (say) the three 'ability' tests of Wings and by low correlation coefficients with the other measures. The third possibility, that this test does, in fact, load significantly on to the established factors, would be revealed by moderate correlation coefficients with all the other test variables regardless of their factorial structure. Table E presents the results.

	Hoffren with Wing Ability	Hoffren with Wing Appreciation	Hoffren with Indiana-Oregon	Hoffren with Martin
.55 - .59	1			
.50 - .54		1	3	
.45 - .49	1		1	
.40 - .44	1	2		
.35 - .39				1
.30 - .34				
.25 - .29		1		

TABLE E FREQUENCY DISTRIBUTIONS OF THE CORRELATION COEFFICIENTS OF HOFFREN'S TEST WITH THE OTHER TESTS

As with Martin's test there is no evidence that Hoffren's test aligns with any one of the established factors. However, the general magnitude of the correlation coefficients is fairly high: the median is of the order .45 to .49. This is too high to support a separate factor associated with ability to do Hoffren's test and confirms the results presented in Chapter 8.

Appendix 21 - cont'd

The contrast between the figures presented in Tables D and E is interesting because with Martin's test the correlation coefficients are lower. In view of the arguments presented above, this means there is a greater justification for supporting an independent factor for Martin's test than for Hoffren's.

Conclusions

There is some limited support for the factorial structure, the details of which are presented in Chapter 8. This is especially so with regard to the three Wing 'Ability' Tests, the four measures used from the Indiana-Oregon test, and Hoffren's test. On the other hand, this unsophisticated analysis provides less support for factors associated with the Wing Appreciation Tests and for Martin's Test. On balance, one must conclude that the inclusion of the 'illegitimate' variables in the factor analyses has influenced the results to some extent, but possibly not so much as to seriously invalidate them.

APPENDIX 22

A Comparison of the Factor Loadings of Selected Key Variables on Equivalent Factors and the Correlation Coefficients of these Variables with each other

Appendix 22(a): Performance on Tests

		Name of Variable: Total for Wing's Ability Tests	Total for Wing's Appreciation Tests	Total for the Indiana-Oregon Test
Name of Factor	Performance on Wing Ability Tests (I)	.37	.08	.04
	Performance on Wing Appreciation Tests (II)	.04	.46	.02
	Performance on Indiana-Oregon Test	.04	-.01	.41

TABLE A-1 FACTOR LOADINGS (BASED ON THE PRINCIPAL COMPONENTS ANALYSIS WITH VARIMAX ROTATION)

		Name of Variable: Total for Wing's Ability Tests	Total for Wing's Appreciation Tests	Total for the Indiana-Oregon Test
Name of Variable	Total for Wing's Ability Tests	(1.00)	.66	.68
	Total for Wing's Appreciation Tests	.66	(1.00)	.57
	Total for the Indiana-Oregon Test	.68	.57)	(1.00)

TABLE A-2 CORRELATION COEFFICIENTS

Appendix 22 - cont'd

The first matrix (Table A-1) shows that when performance on tests is considered, the factor loadings for total score from one test on the factor for another test is negligible. Except on the diagonal, the loadings are not significantly greater than zero. Even on the diagonal, where high loadings are to be expected, the figures are relatively low. However, it must be remembered that the principal components tended to give lower factor loadings than Rao's factoring. The second matrix, of correlation coefficients, shows that there is a considerable overlap in what the tests measure. The comparison of these two matrices highlights the problem of identifying what, in psychological or musical terms, a factor is the statistical analogue of

Similar matrices could be produced for other groups of factors. In Appendix 22(b) the equivalent matrices for the taste variables/ factors are presented. However, it will be seen that identification of the factors is less difficult. The loadings on the diagonal (Table B-1) are higher than the equivalent loadings in Table A-1, and the intercorrelations tend to be lower.

Appendix 22 - cont'd

Appendix 22(b): Musical Taste

Name of Variable

		Taste for Orchestral Music	Taste for Folk Music	Taste for Latin-American Music
Name of Factor	Taste for classical music (IX)	.43 (.73)	.03 (.05)	.07 (.07)
	Taste for folk music (X)	.11 (.17)	.64 (.88)	.18 (.13)
	Taste for light music (XI)	-.07 (-.11)	-.06 (-.06)	.50 (.60)

TABLE B-1 FACTOR LOADINGS, BASED ON THE FULL PRINCIPAL COMPONENTS ANALYSIS WITH VARIMAX ROTATION. (THE FIGURES IN BRACKETS ARE THE FACTOR LOADINGS FROM THE PRINCIPAL COMPONENTS ANALYSIS, WITH VARIMAX ROTATION, OF ONLY THE 10 TASTE VARIABLES (SEE PAGE 165))

Name of Variable

		Taste for Orchestral Music	Taste for Folk Music	Taste for Latin-American Music
Name of Variable	Taste for orchestral music	(1.00)	.21	.12
	Taste for folk music	.21	(1.00)	.18
	Taste for Latin-American music	.12	.18	(1.00)

TABLE B-2 CORRELATION COEFFICIENTS

APPENDIX 23 **Matrix of correlation Coefficients of Music Variables with Personality Variables**

	E	N	A	B	C	D	E	F	G	H
1	-08	-08	10	37	01	-06	-09	04	04	04
2	-07	-06	13	37	-03	-12	-21	09	15	03
3	-12	-01	19	41	-19	-09	-18	01	07	-05
4	-16	-04	11	23	-20	02	-12	-16	07	-07
5	-04	-13	21	27	-11	01	-06	12	-05	15
6	-07	04	12	21	-15	-03	-06	-05	10	-08
7	-13	-15	02	15	-05	-12	-16	-03	00	-01
8	-10	-05	17	44	-08	-11	-19	07	11	01
9	-14	-10	17	31	-18	-03	-14	-03	04	01
10	-13	-10	21	41	-11	-06	-16	04	13	04
11	05	-19	25	30	-04	-09	00	15	08	18
12	-02	-12	13	17	-06	-07	-10	04	-07	13
13	-14	-04	14	35	-14	01	-15	02	03	00
14	12	-21	17	28	-05	-07	-01	15	04	11
15	-03	-13	18	33	-10	-04	-11	08	00	09
16	00	-18	23	35	-08	-07	-07	12	04	14
17	-05	-11	18	25	-12	-02	-17	07	03	-01
18	15	06	40	23	-10	05	01	30	-17	12
*18A	-16	-15	16	43	-12	-06	-18	-01	17	07
19	-09	-01	10	20	-01	07	-10	-10	12	-04
20	05	-11	09	11	08	-16	-13	-06	16	06
*20A	04	-11	21	22	-05	00	-17	06	12	04
21	05	-02	10	08	16	-09	00	07	04	17
*21A	05	-10	08	07	19	-10	-04	03	-01	12
22	04	-08	18	18	-11	-01	-13	07	06	01
*22A	04	-07	19	20	-07	01	-13	10	02	08
24	-02	11	16	18	-04	05	-01	-03	09	-02
25	02	06	12	13	-10	00	-12	02	-05	01
26	04	00	15	03	-01	-01	-03	01	02	01
33	08	-17	19	-02	07	-03	-06	10	04	21
35	-08	-05	16	09	-02	-09	-13	-02	03	11
36	26	-07	23	-14	10	04	22	19	-10	20
*34A	-01	-04	21	22	-01	-01	-01	04	09	05
38	-15	-04	09	28	-03	-01	-16	03	20	05
39	-17	03	-06	24	-07	01	-15	-10	13	-06
40	-10	-10	11	23	05	-16	-11	03	21	08
41	08	-12	13	12	00	-10	-09	-01	18	07
42	17	01	13	00	-02	03	-04	05	12	05
43	19	-06	07	-02	11	-07	07	10	08	17
44	-03	03	-02	08	06	-03	-13	02	14	-07
45	07	07	10	14	04	-04	-07	11	08	00
46	27	04	13	-04	02	00	10	04	-03	-05
47	25	-07	24	08	05	-04	10	14	-03	12

The numbering of the variables is the same as provided in Appendix 15. However, some new variables have been added. These are named below.

Appendix 23 - cont'd

	I	J	O	Q_2	Q_3	Q_4	Q_I	Q_{II}	Q_{III}	Q_{IV}
1	07	01	-14	-05	01	00	05	-07	-11	-11
2	15	-07	-10	-16	-06	-05	02	-01	-18	-26
3	15	-09	-03	-12	03	08	-03	05	-29	-24
4	21	-13	06	-04	03	05	-09	05	-22	-18
5	05	-17	-14	-15	-14	06	17	06	-02	-22
6	15	-02	-03	-10	-08	08	00	04	-13	-19
7	05	-11	-03	-03	-06	-09	-01	-04	-05	-26
8	16	-05	-11	-13	-02	00	02	-01	-23	-24
9	16	-16	-06	-12	-09	04	03	04	-15	-30
10	19	-09	-11	-16	-08	04	06	01	-20	-27
11	13	-05	-13	-13	05	-06	17	-08	-14	-11
12	00	-15	00	-22	-07	13	11	07	00	-17
13	18	-13	-16	-15	-02	06	02	03	-19	-23
14	06	-11	-07	-10	-01	00	14	-02	-08	-13
15	11	-16	-10	-19	-04	08	10	04	-12	-22
16	13	-12	-13	-18	00	02	14	-02	-14	-19
17	10	-07	-04	-08	01	12	04	03	-19	-11
18	13	-26	-26	-26	15	-01	28	09	-10	-28
*18A	16	-07	-10	-12	-02	10	03	-01	-20	-21
19	16	-06	-01	04	03	08	-07	00	-21	-01
20	14	-06	-08	-03	08	-04	00	-16	-15	-19
*20A	22	-13	-16	-18	-09	-02	07	-01	-20	-30
21	-07	-04	-11	-02	02	-01	14	-13	06	-03
*21A	-15	-02	-15	02	03	-08	08	-14	05	-01
22	11	-04	-05	-10	-20	05	07	07	-12	-24
*22A	17	-09	-14	-16	-13	01	11	02	-11	-26
24	14	03	04	00	02	10	00	04	-15	01
25	08	-16	01	-12	-03	13	03	08	-10	-12
26	08	-09	-06	-03	-07	-09	05	-01	-08	-08
33	04	-10	-12	-05	00	-03	17	-10	-02	-04
35	29	05	-09	01	02	-11	02	-02	-18	-06
36	05	-12	03	-15	-05	03	29	00	10	00
*34A	14	00	-09	00	-04	06	09	-03	-11	-06
38	34	11	-14	02	05	-04	-03	-08	-27	-06
39	24	09	-05	07	04	06	-11	-03	-17	-02
40	20	13	-20	-02	12	-02	04	-17	-19	-04
41	06	-13	-28	-09	04	-14	05	-16	-15	-22
42	09	-07	-06	-10	-02	04	09	-03	-08	-10
43	04	-15	-08	-06	-02	-09	17	-14	08	-11
44	10	-10	-14	-03	04	-03	-06	-08	-12	-14
45	10	-12	-09	-10	00	-11	05	-04	-09	-18
46	-14	-19	07	-29	-17	00	10	12	09	-15
47	08	-23	-06	-23	-07	00	22	-02	-01	-16

Appendix 23 - cont'd

18A This is an index of 'test ability' in which scores on the Wing 'Ability' tests, the Wing 'Appreciation' tests and the Indiana-Oregon test were composited (i.e. variables 8, 9 and 16). The three scores used were weighted so as to give them equivalent importance.

20A Number of years of studying (i.e. being taught) an instrument other than the piano.

21A Number of years of studying an instrument which has not been (formally) taught by a teacher.

22A Number of years a member of a school orchestra.

34A This variable is a composite of variables 24 and 34 (i.e. Member of some musical group organised outwith school and self-assessment of instrumental playing), and was considered a measure of self-initiated interest and ability.

APPENDIX 24

Average Personality Test Scores for School Pupils - Broken Down by Instrument

	Piano	Strings	Woodwind	Brass	'Pop' Strings
E	15.81	16.34	16.47	16.10	15.33
N	11.55	10.44	11.89	11.70	12.81
A	5.70	5.86	5.50	6.63	5.58
B	6.55	6.59	6.06	6.88	6.25
C	5.51	6.14	5.50	4.38	5.79
D	5.38	4.86	5.02	4.63	5.21
E	5.09	4.66	5.17	4.63	5.54
F	5.28	6.00	5.12	5.13	6.21
G	6.08	6.93	5.54	5.13	5.58
H	5.32	6.28	5.00	5.00	5.50
I	6.21	6.66	5.98	6.75	6.13
J	5.25	5.31	5.27	4.88	5.38
O	6.30	5.72	6.69	6.13	5.88
Q_2	5.98	5.79	5.96	6.00	6.04
Q_3	5.40	5.52	5.23	4.88	4.75
Q_4	4.91	4.59	4.60	5.25	4.92
QI	4.96	5.71	4.77	4.85	5.86
QIII	4.91	4.86	5.17	4.49	5.69
QIV	5.33	4.75	5.10	4.68	5.28
	N = 53	N = 29	N = 52	N = 10	N = 24

Only pupils who had studied their instrument for at least one year were included. An individual's scores may be included in more than one column if he studied two (or more) instruments, each for at least a year.

APPENDIX 25

Multiple Regression Analyses on 'Performance on Wing's Ability Tests'

Independent Variables: The Personality variables

	Multiple r	% of Variance Accounted for*
Factor B	.43793	19.179
Factor QIII	.45671	1.680
Factor QIV	.47277	1.493
Factor F	.48422	1.095
Extraversion (J.E.P.I.)	.49960	1.514
Factor QI	.50613	.657
Factor D	.51049	.443
Factor Q4	.51640	.607
Factor C	.51939	.309
Factor M	.52550	.639
Factor F	.52888	.356
Factor H	.53038	.159
Factor I	.53350	.332
Neuroticism (J.E.P.I.)	.53586	.252
Factor O	.53756	.182
Factor Q3	.53787	.034
		28.931

*It should be noted in this, and all other multiple regression analyses, that where dependent variables overlap, what is common is extracted and attributed to the higher variable on the list

Appendix 25 - cont'd

Dependent Variable: Performance on Wing's Ability Tests

Independent Variables: Personality and home background variables

Independent Variables	Multiple r	% of Variance Accounted for
Number of instruments at home	.58163	33.829
Factor B	.65272	8.775
Factor I	.65989	.942
Extent of family music making	.66635	.857
Factor QIV	.67242	.813
Extraversion (J.E.P.I.)	.67542	.404
Factor A	.68072	.719
Whether siblings play an instrument	.68455	.522
Factor D	.68713	.354
Factor C	.69178	.640
Factor F	.69473	.410
Factor Q3	.69978	.703
Whether parents play or sing .	.70096	.166
Factor J	.70262	.232
Factor Q4	.70341	.112
Factor Q2	.70459	.167
Factor H	.70548	.125
Factor O	.70561	.018
Factor G	.70569	.012
Factor QIII	.70581	.017
Factor E	.70629	.067
Factor QI (exvia)	.70667	.054
		49.938

APPENDIX 26

Multiple Regression Analyses on 'Membership of a School Orchestra'

Independent Variables: The Personality variables

	Multiple r	% of Variance Accounted for
Factor QIV	.23895	5.710
Factor Q3	.27246	1.714
Factor QIII	.33361	3.706
Neuroticism (J.E.P.I.)	.37171	2.688
Factor J	.38088	.690
Factor QI (exvia)	.39053	.744
Factor Q4	.40072	.806
Factor Q2	.41860	1.465
Factor B	.42403	.457
Factor G	.42812	.349
Factor C	.43230	.360
Factor D	.43334	.090
Factor E	.43437	.089
Factor F	.43594	.137
Factor H	.43700	.093
Factor A	.43876	.154
Factor I	.43934	.051
Extraversion (J.E.P.I.)	.43971	.033
Factor O	.44007	.032
		19.366

When home background variables are added in after the personality variables, the table on the personality variables is extended as follows

	Multiple r	% of Variance Accounted for
The personality variables	.44007	19.366
Number of instruments at home	.55019	10.905
Whether siblings play an instrument	.56330	1.459
Whether parents play or sing .	.56604	.310
Extent of family music making	.56811	.234
		32.274

Appendix 26 - cont'd

Dependent Variable: Membership of a school orchestra

Independent Variables: Personality and home variables and 'Performance on Wing's Ability Tests'

No constraint upon sequence for the variables to be added into the regression

	Multiple r	% of Variance Accounted for
Score on Wing's Ability Tests (1 - 3)	.46802	21.904
Whether siblings play an instrument	.52650	5.816
Factor Q3	.55495	3.076
Neuroticism (J.E.P.I.)	.56227	.818
Factor QIII	.57590	1.552
Factor J	.58151	.649
Extraversion (J.E.P.I.)	.58594	.517
Number of instruments at home	.59001	.479
Factor B	.59356	.421
Extent of family music making	.59669	.373
Factor QIV	.59873	.244
Factor Q2	.60180	.368
Whether parents play or sing .	.60411	.279
Factor C	.60586	.212
Factor I	.60702	.141
Factor G	.60781	.097
Factor Q4	.60837	.067
Factor E	.60877	.049
Factor O	.60900	.029
Factor QI (exvia)	.60920	.024
Factor F	.60962	.052
Factor H	.61072	.134
Factor A	.61175	.126
		37.423

APPENDIX 27

Multiple Regression Analysis on 'Whether an Instrument has been Self-Taught'

Independent Variables: Personality and home background variable

	Multiple r	% of Variance Accounted for
Number of Instruments at home	.27474	7.548
Factor H	.32448	2.981
Extent of family music making	.34144	1.129
Neuroticism (J.E.P.I.)	.35936	1.256
Factor C	.37815	1.385
Factor I	.38300	.369
Factor B	.38663	.279
Whether parents play or sing .	.38948	.221
Factor Q3	.39286	.264
Factor G	.39642	.281
Factor D	.39780	.110
Factor E	.39897	.093
Factor Q2	.40001	.082
Factor QI	.40174	.139
Factor F	.40403	.184
Factor A	.40451	.039
Factor QIV	.40467	.012
Factor O	.40483	.014
Extraversion (J.E.P.I.)	.40497	.011
		16.400

APPENDIX 28

The Measures of 'Evaluation', 'Activity', and 'Potency' derived from The Semantic Differential Data

The use of the semantic differential produced ratings on a number of rating scales for each extract of music and for the concept 'self'.

To obtain, for a given piece of music, a measure of 'evaluation' (say) the ratings on the appropriate scales were summed. The choice of appropriate scales was based upon the factor analysis, the results of which are reported in Appendix 13. No weighting procedure was used to give one scale more importance than another because its factor loading on the evaluation factor was higher. Because the loadings of the chosen scales are all fairly high and fairly similar, this lack of weighting should not lead to any serious errors.

For all the musical extracts the same six rating scales were employed for producing a measure of evaluation. These are -

*Pleasant	-	Unpleasant
*Nice	-	Awful
*Beautiful	-	Ugly
Good	-	Bad
Interesting	-	Boring
*Valuable	-	Worthless

For a measure of evaluation of self, only four of these six scales were used. They are indicated by an asterisk. To make the measures of evaluation of the music and of 'self' comparable, the total of the four chosen ratings for 'self' were multiplied by 1.5.

Similar procedures were used for producing measures of Potency and Activity.

Appendix 28 - cont'd

For Potency the same three rating scales were appropriate for all 9 pieces of music. These are -

Heavy - Light

Strong - Weak

Masculine - Feminine

For self, only the scale Heavy - Light was used, and the rating was multiplied by 3 to make it comparable.

Measures of Activity provided greater difficulties. The scales, Active - Passive and Excited - Calm were the basis of the measures of Activity for four pieces of music ('Play Bach', Bruch, Vivaldi and the song 'Bridge over Troubled Water'). For all the other extracts of music, except for the Bartok and also for 'self', only one scale, Active - Passive, was used. For the Bartok three scales were used, viz. Active - Passive, Colourful - Colourless and Hot - Cold. As with Evaluation and Potency, adjustments were made to ensure that the measures for each of the musical extracts and for 'self' were comparable.

APPENDIX 29

Matrix of the Correlation Coefficients of the 'Evaluation' Scores (from The Semantic Differential) with The Personality Variables

		1	2	3	4	5	6	7	8	9	10
J.E.P.I.	E	09	14	-17	01	-04	-03	14	-24	04	13
	N	00	-24	06	-06	-02	12	12	00	-24	-05
H.S.P.Q.	A	04	-09	-04	03	-05	-04	01	-11	01	03
	B	00	02	27	08	20	06	-24	42	10	-03
	C	07	09	-08	-09	-13	-04	03	-32	01	24
	D	18	-17	-14	-10	-08	-04	13	04	-09	-12
	E	01	02	-14	01	-22	-10	13	-30	08	15
	F	13	04	-06	-07	-11	-05	-09	-12	14	04
	G	-01	01	18	08	28	01	03	18	03	14
	H	13	27	-05	-01	01	01	-09	-27	02	15
	I	-11	-15	13	06	31	09	-10	36	-15	-16
	J	-22	13	14	-05	09	-01	00	06	-11	-04
	O	04	-21	-03	-18	-14	-10	12	-03	-04	00
	Q2	-13	-07	-02	-06	11	04	-03	07	-12	-11
	Q3	-09	04	17	00	18	09	03	11	-03	-01
	Q4	-12	-08	-03	-13	-02	-06	12	05	-14	05
	QI	15	12	-10	-03	-13	-03	-01	-32	05	14
	QII	00	-19	-12	-07	-21	-12	04	08	04	-09
	QIII	10	15	-17	-08	-25	-09	06	-39	03	13
	QIV	-17	-04	-09	-13	-13	-09	15	-12	-10	04

The column headings 1 - 9 stand for Evaluation of the extracts of music from -

1. The 'trad. jazz' music (Chris Barber's 'Whistling Rufus')
2. Jacques Lonssier's 'Play Bach'
3. Bruch's Violin Concerto
4. Prokofief's 'Romeo and Juliet Suite'
5. Vivaldi's 'The Four Seasons'
6. Brahm's Piano Concerto
7. Simon and Garfunkel's song 'Bridge over Troubled Water'
8. Bach's Brandenburg Concerto No 4
9. Bartok's Miraculous Mandarin Suite

Column 10 is Evaluation of 'Myself'

APPENDIX 30

Matrix of the Correlation Coefficients of the Measures of Semantic Distance (between 'Self' and a Musical Extract) with The Personality Variables

		1	2	3	4	5	6	7	8	9
J.E.P.I.	E	-36	-13	-01	-14	-15	-08	00	16	04
	N	16	10	07	01	11	08	-02	-11	14
H.S.P.Q.	A	-03	01	-04	-01	05	-01	15	19	-05
	B	01	04	-26	00	-08	-11	-16	12	-01
	C	-14	-15	15	-20	12	-06	13	11	-11
	D	-02	10	07	22	-10	00	09	-08	03
	E	-16	13	19	-12	29	18	11	-26	04
	F	-10	16	05	05	02	13	22	20	11
	G	-01	-10	-21	-08	-09	-16	-12	-30	-08
	H	-22	-06	15	-09	07	-06	13	19	-06
	I	-01	00	-02	03	-07	-04	02	-11	- 5
	J	08	-10	-01	-08	13	00	-06	-01	09
	O	10	11	-01	14	05	17	-05	-16	02
	Q2	04	18	03	11	10	09	-02	-05	12
	Q3	-13	-25	08	-18	08	-10	-15	-11	-07
	Q4	04	03	10	19	-04	00	-08	-08	-01
	QI	-17	07	15	04	11	06	19	29	-01
	QII	16	21	-09	23	-09	14	06	-02	10
	QIII	-05	08	17	-01	12	14	10	20	05
	QIV	-05	-02	15	-03	25	10	00	01	06

The column headings 1 - 9 stand for the semantic distances between the point (in the 3 dimensional semantic space) representing 'self' and the points representing each of the 9 extracts of music -

1. The 'trad. jazz' music (Chris Barber's 'Whistling Rufus')
2. Jacques Lonssier's 'Play Bach'
3. Bruch's Violin Concerto
4. Prokofief's 'Romeo and Juliet Suite'
5. Vivaldi's 'The Four Seasons'
6. Brahm's Piano Concerto
7. Simon and Garfunkel's song 'Bridge over Troubled Water'
8. Bach's Brandenburg Concerto No 4
9. Bartok's Miraculous Mandarin Suite

The semantic distance provides an indication of congruence between assessment of ones own characteristics and those of the music. But there is an inverse relationship - a short distance indicates high congruence. Consequently a negative correlation coefficient in the table indicates a positive correlation between the personality factor and 'congruence'.

APPENDIX 31

Comparison of Music Students Results for Extraversion, with Eysenck's Norms

				Eysenck 'Student Teacher' Norms				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
College Men	11.30	4.62	67	12.37	4.46	132	1.56	N.S.*
College Women	12.50	5.02	76	12.37	4.46	132	.19	N.S.

*Comparison probably not valid

				Eysenck 'Student' Norms				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
College Men	11.30	4.62	67	11.10	4.54	189	.31	N.S.
College Women	12.50	5.02	76	11.10	4.54	189	2.11	.05
Academy Men	10.00	4.30	23	11.10	4.54	189	1.15	N.S.
Academy Women	10.91	5.08	55	11.10	4.54	189	.25	N.S.
College and Academy Students	11.49	4.82	210	11.10	4.54	189	.83	N.S.

				Eysenck 'General Population' Norms				
	Mean	S.D.	N	Mean	S.D.	N	t	Sig
College Men	11.30	4.62	67	12.07	4.37	2000	1.34	N.S.
College Women	12.50	5.02	76	12.07	4.37	2000	.74	N.S.
Academy Men	10.00	4.30	23	12.07	4.37	2000	2.30	.05
Academy Women	10.91	5.08	55	12.07	4.37	2000	1.68	N.S.
College and Academy Students	11.49	4.82	210	12.07	4.37	2000	1.67	N.S.

APPENDIX 32

Cattell's 16 P.F. The Form of Test used and the Scoring Adopted

The music students at the College were tested on either the 1962 or the 1968 edition of the 16 P.F. Form A alone was used. Only those tested before 1970 (quite a small proportion) had the 1962 edition. In 1970, the N.F.E.R. published in Britain the Anglicised version of the 1968 Edition of the 16 P.F. and this was used with the majority of the College subjects and with all the Academy subjects.

The scoring was carried out using the standard procedures. To convert the raw scores to sten scores the General Population Norms from the British standardisation of the test were used (Saville, 1972). Student norms were not used as there are no British student norms and the American student norms were considered less valid.

With this test and with the parallel test for school pupils, the H.S.P.Q., it was felt highly desirable to use the Anglicised version of the test and British norms and this was therefore done.

The lack of student norms is a real disadvantage in but one situation, i.e. when considering the scores on Factor B (intelligence) for the Academy and College subjects. The raw scores for these students are therefore provided here together with sten equivalents based upon the American student norms.

	Raw scores		Sten scores	
	Mean	S.D.	Mean	S.D.
British General Population (Both men and women)	7.0	2.1	-	-
American General Population (Both men and women)			-	-
Academy and College Students (Both men and women)	9.3	1.9		
Academy and College Students (Men only)	9.5	*		
Academy and College Students (Women only)	9.1	*		

* Not calculated

APPENDIX 33

The Personality Dimensions Measured by Cattell's Tests, i.e. the H.S.P.Q., and the 16P.F.

	Low Sten Score Description (1 - 3)	Alphabetic Designation of Factor	High Sten Score Description (8 - 10)	
(A-)	Sizothymia Reserved, detached, critical, aloof, stiff	A	Affectothymia Warmhearted, outgoing, easygoing, participating	(A+)
(B-)	Low intelligence (Crystallized, power measure) Dull	B	High intelligence (Crystallized, power measure) Bright	(B+)
(C-)	Lower ego strength Affected by feelings, emotionally less stable, easily upset, changeable	C	Higher ego strength Emotionally stable, mature, faces reality, calm	(C+)
(D-)	Phlegmatic temperament Undemonstrative, deliberate, inactive, stodgy	D	Excitability Excitable, impatient, demanding, overactive, unrestrained	(D+)
(E-)	Submissiveness Obedient, mild, easily led, docile, accommodating	E	Dominance Assertive, aggressive, competitive, stubborn	(E+)
(F-)	Desurgency Sober, taciturn, serious	F	Surgency Enthusiastic, heedless, happy-go-lucky	(F+)
(G-)	Weaker superego strength Disregards rules, expedient	G	Stronger superego strength Conscientious, persistent, moralistic, staid	(G+)

Appendix 33 - cont'd

	Low Sten Score Description (1 - 3)	Alphabetic Designation of Factor	High Sten Score Description (8 - 10)	
(H-)	Threctia Shy, timid, threat-sensitive	H	Parmia Adventurous, "thick-skinned," socially bold	(H+)
(I-)	Harria Tough-minded, rejects illusions	I	Premsia Tender-minded, sensitive, dependent, overprotected	(I+)
(J-)	Zeppia Zestful, liking group action	J	Coasthenia Circumspect individualism, reflective, internally restrained	(J+)
(L-)	Alaxia Trusting, adaptable, free of jealousy, easy to get along with	L	Protension Suspicious, self-opinionated, hard to fool	(L+)
(M-)	Praxemia Practical, careful, conventional, regulated by external realities, proper	M	Autia Imaginative, wrapped up in inner urgencies, careless of practical matters, bohemian	(M+)
(N-)	Artlessness Forthright, natural, artless, unpretentious	N	Shrewdness Shrewd, calculating, worldly, penetrating	(N+)

Appendix 33 - cont'd

	Low Sten Score Description (1 - 3)	Alphabetic Designation of Factor	High Sten Score Description (8 - 10)	
(O-)	Untroubled adequacy Self-assured, placid, secure, complacent, serene	O	Guilt proneness Apprehensive, Self-reproaching, insecure, worrying, troubled	(O+)
(Q_1-)	Conservatism Respecting established ideas Tolerant of traditional difficulties	Q_1	Radicalism Experimenting Liberal Analytical Free-thinking	(Q_1+)
(Q_2-)	Group dependency Sociably group dependent, a "joiner" and sound follower	Q_2	Self-sufficiency Self-sufficient, resourceful, prefers own decisions	(Q_2+)
(Q_3-)	Low self-sentiment integration Uncontrolled, lax, follows own urges, careless of social rules	Q_3	High strength of self-sentiment Controlled, exacting will power, socially precise, compulsive, following self-image	(Q_3+)
(Q_4-)	Low ergic tension Relaxed, tranquil, torpid, unfrustrated, composed	Q_4	High ergic tension Tense, driven, overwrought, fretful	(Q_4+)

Appendix 33 - cont'd

	Low Sten Score Description (1 - 3)	Alphabetic Designation of Factor	High Sten Score Description (8 - 10)	
(Q I-)	Invia Introversion	Q I	Exvia (social) extraversion	(Q I+)
(Q II-)	Adjustment	Q II	Anxiety	(Q II+)
(QIII-)	Pathemia Feeling rather than thinking	QIII	Cortertia Cortical alertness	(QIII+)
(Q IV-)	Subduedness	Q IV	Independence Perceptual and temperamental independence "Promethean Will"	(Q IV+)

REFERENCES

ADLER, M. J., 1929, Musical Appreciation: An Experimental Approach to its Measurement, Archives of Psychology, 110, 101

AGNEW, Marie, 1922 a, A Comparison of the Auditory Images of Musicians, Psychologists and Children, Psychological Monographs, 31, 268

AGNEW, Marie, 1922b, The Auditory Images of Great Composers, Psychological Monographs, 31, 279

ALLPORT, G. W., 1937, Personality: A Psychological Interpretation, Constable & Co.

ALLPORT, G. W., VERNON, P.E., and LINDZEY, G., 1951, A Study of Values: A Scale for Measuring the Dominant Interests in Personality, Houghton Mifflin

ANASTASIA, A., 1954, Psychological Testing, Macmillan

ANSTEY, E., 1966, Psychological Tests, Nelson

ALVIN, J., 1965, Music for the Handicapped Child, Oxford University Press

BAUMANN, V. H., 1960, Teenage Music Preferences, Journal of Research in Musical Education, VIII, 75

BELL, Hugh, M., 1962, Bell Adjustment Inventory, (Revised student form), Consulting Psychologists Press

BENTLEY, Arnold, 1966, Musical Ability in Children, Harrap

BERELYNE, D. E., 1960, Conflict, Arousal and Curiosity, McGraw Hill

BINGHAM, W. V., 1910, Studies in Melody, Psychological Monographs, 12, Whole No.50

BIRCH, T. E., 1962, Musical Taste as Indicated by Records Owned by College Students with Varying High School Music Experience, Unpublished Ed.D. Thesis, University of Missouri, (Dissertation Abst. XXIII. 7. 2545)

BIRKHOFF, George, D., 1933, Aesthetic Measure, Harvard University Press

BLOOM, Benjamin, S., ed., 1956, Taxonomy of Educational Objectives, Handbook I: Cognitive Domain, David McKay

BROCKLEHURST, J. B., 1962, Music in Schools, Routledge & Kegan Paul

BROCKLEHURST, J. B., 1971, Response to Music, Routledge & Kegan Paul

BROWN, J. A. C., 1961, Freud and the Post Freudians, Penguin

BRUNER, J. S., GOODNOW, J. J., and AUSTIN, G. A., 1958, A Study of Thinking, Wiley

BUCK, Percy, C., 1943, Psychology for Musicians, Oxford University Press

BUGG, E. G., and HERPEL, L., 1946, Significance of Tonal Memory for Musicality, Journal of General Psychology, 35, 3

BURNEY, C., 1776 - 1789, A General History of Music, Printed for the author

BURT, C., 1939, The Factorial Analysis of Emotional Traits, Character and Personality, 7, 238 and 285

BUTCHER, H. J., 1968, Human Intelligence, Methuen

CAFFREY, John, 1955, Auding, Review of Educational Research, 25, 121

CAMPBELL, Ivy, G., 1942, Basal Emotional Patterns Expressible in Music, American Journal of Psychology, 55, 1

CARR, R. J., 1972, The Personality of Participants in Sport: A Study of Physical Education Students, Unpublished Ph.D. Thesis, Glasgow

CATTELL, R. B., 1965, The Scientific Analysis of Personality, Penguin

CATTELL, R. B., and ANDERSON, J. C., 1953a, The Music Preference Test of Personality, I.P.A.T.

CATTELL, R. B., and ANDERSON, J. C., 1953b, The Measurement of Personality and Behaviour Disorders by the I.P.A.T. Music Preference Test, Journal of Applied Psychology, 37, 446

CATTELL, R. B., and CATTELL, M. D., 1969, Handbook for the Jr.-Sr. High School Personality Questionnaire, I.P.A.T.

CATTELL, R. B., EBER, H. W., and TATSUOKA, M. M., 1970, Handbook for the 16PF, I.P.A.T.

CATTELL, R. B., and SAUNDERS, D. R., 1954, Musical Preferences and Personality Diagnosis: I. A Factorisation of One Hundred and Twenty Themes, Journal of Social Psychology, 39, 3

CHAVEZ, C., 1961, Musical Thought, Harvard University Press

CHERRY, Colin, 1966, On Human Communication, 2nd edn., The M.I.T. Press

CHILD, Francis, James, 1882 - 1898, The English and Scottish Popular Ballads, Houghton Mifflin

CHILD, I. L., 1965, Personality Correlates of Esthetic Judgement in College Students, Journal of Personality, 33, 476

CHILD, Irvin, L., 1972, Esthetics, Annual Review of Psychology, 23

CHILD, I. L., and IWAO, Sumiko, 1968, Personality and Aesthetic Sensitivity: Extension of Findings to Younger Age and to Different Culture, Journal of Personality and Social Psychology, 8, 308

CHOWDHURY, K. R., and VERNON, P. E., 1964, An Experimental Study of Imagery and its Relation to Abilities and Interests, British Journal of Psychology, 55, 355

COHEN, J. E., 1962, Information Theory and Music, Behavioural Science, 7, 137

COLWELL, R., 1970, The Evaluation of Music Teaching and Learning, Prentice Hall

COOKE, D., 1959, The Language of Music, Oxford University Press

COWLES, C. V., 1963, Testof Aesthetic Judgement, Unpublished Doctoral Dissertation, University of Southern California

COWLES, C. V., 1966, Aesthetic Judgement of High School Music Students, Council for Research in Musical Education, Bulletin, No.8

CURWEN, Mrs. A. J., n.d., Psychology Applied to Music Teaching, Curwen

DAVIES, J. B., 1971, New Tests of Musical Aptitude, British Journal of Psychology, 62, 557

DRAKE, R. M., 1945, The Effect of Ear Training on Musical Talent Scores, Journal of Musicology, 4, 110

DYER, Terence, 1967, Teaching Musical Appreciation, Oxford University Press

EBEL, R. L., 1965, Measuring Educational Achievement, Prentice Hall

EBEL, R. L., ed., 1969, Encyclopedia of Educational Research, 4th edn., American Educational Research Association

EDMONSTON, W. E., 1966, The Use of the Semantic Differential Technique in the Esthetic Evaluation of Musical Excerpts, Americal Journal of Psychology, 79, 650

EDMONSTON, W. E., 1969, Familiarity and Musical Training in the Esthetic Evaluation of Music, Journal of Social Psychology, 79, 109

EHRENZWEIG, A., 1967, The Hidden Order of Art, Weidenfeld

ERNESTON, N., 1961, A Study to Determine the Effect of Musical Experience and Mental Ability on the Formulation of Musical Taste, Unpublished Ph.D. Thesis, Florida State University, (Dissertation Abstracts XXII. 8. 2817)

EYSENCK, H. J., 1940, The General Factor in Aesthetic Judgements, British Journal of Psychology, 31, 94

EYSENCK, H. J., 1941, 'Type'-factors in Aesthetic Judgements, British Journal of Psychology, 31, 262

EYSENCK, H. J., 1959, The Maudsley Personality Inventory, University of London Press

EYSENCK, H. J., and EYSENCK, S. B. G., 1964, The Eysenck Personality Inventory, University of London Press

EYSENCK, S. B. G., 1965, Junior Eysenck Personality Inventory, University of London Press

EVANS, J., 1939, Taste and Temperament, Jonathan Cape

FARNSWORTH, Paul, R., 1949, Rating Scales for Musical Interests, Journal of Psychology, 28, 245

FARNSWORTH, Paul, R., 1950, Musical Taste: Its Measurement and Cultural Nature, Stanford University Press

FARNSWORTH, Paul, R., 1954, A Study of the Hevner Adjective List, Journal of Aesthetics and Art Criticism, 12, 97

FARNSWORTH, Paul, R., 1958, The Social Psychology of Music, Holt, Rinehart and Winston

FAULDS, B., 1959, The Perception of Pitch in Music, Princeton University Press

FINDLAY, W. G., 1956, Rationale for Evaluation of Item Discrimination Statistics, Educational and Psychological Measurement, 16, 175

FRANCÈS, Robert, 1957, Le Problème de l'expression Musicale: quelque données experimentales, Psychologie Française, 11

FRANCÈS, Robert, 1958a, La Perception de la Musique, Vrin

FRANCÈS, Robert, 1958b, Musique et Image, Cahiers d'Etude de Radio-Television, 18, Flammarion

FRANCÈS, R., 1968, Psychologie de l'esthétique, Presses Universitaires de France

FRANKLIN, E., 1956, Tonality as a Basis for the Study of Musical Talent, Gumperts Forlag

FRANKLIN, E., 1972, Music Education, Harrap

FURNESS, E. A., Listening: A Case of Terminological Confusion, Journal of Educational Psychology, 48, 472

GALTON, F., 1883, Inquiries into Human Faculty, Macmillan

GARDNER, H., 1971, Children's Sensitivity to Musical Styles, Harvard Proj. Zero Tech. Rep., No.4

GARDNER, P. A. D., and PICKFORD, R. W., 1943, Relation between Dissonance and Context, Nature, 152, 358

GARDNER, P. A. D., and PICKFORD, R. W., 1944, Relation between Dissonance and Context, Nature, 154, 274

GARRETT, Henry, E., 1958, Statistics in Psychology and Education, 5th edn., Longmans, Green

GASTON, E. T., 1958, A Test of Musicality, Odell's Instrumental Service

GATEWOOD, E. L., 1927, An Experimental Study of the Nature of Musical Enjoyment, Chapters 4 and 5, in Schoen, M., 1927

GILMAN, H., 1892, Report on an Experimental Test of Musical Expressiveness, American Journal of Psychology, 4, 558 and 5, 42

GORDON, Edwin, 1961, A Study to Determine the Effects of Training and Practice on Drake Musical Aptitude Test Scores, Journal of Research in Musical Education, 9, 63

GORDON, Edwin, 1965, Musical Aptitude Profile, Houghton Mifflin

GREEN, C. J. C., 1967, Musical Appreciation: Some Psychological, Social and Educational Factors, Unpublished Ph.D. Thesis, University of Leeds

GUILDFORD, J. P., 1950, Creativity, American Psychologist, 5, 444

GUILDFORD, J. P., 1956, The Structure of Intellect, Psychological Bulletin, 53,267

GUILDFORD, J. P., 1957, Creative Abilities in the Arts, Psychological Review, 64, 110

GUILDFORD, J.P., and HILTON, R. A., 1933, Some Configural Properties of Short Musical Melodies, Journal of Experimental Psychology, 16, 32

GUNDLACH, Ralph, H., 1935, Factors Determining the Characterisation of Musical Phrases, American Journal of Psychology, 47, 624

GURNEY, Edmund, 1880, The Power of Sound, Smith, Elder

HADOW, W. H., 1895, Studies in Modern Music, Seley & Co. Ltd.

HARDING, D. W., 1967, Practice at Liking: A Study in Experimental Aesthetics, Bulletin of the British Psychological Society, 21, 3 (4th C. S. Myers Lecture)

HARMAN, Harry, H., 1967, Modern Factor Analysis, University of Chicago Press

HEINLEIN, C. P., 1925, An Experimental Study of the Seashore Consonance Tests, Journal of Experimental Psychology, 8, 408

HEINLEIN, G. P., 1928, The Affective Character of the Major and Minor Modes in Music, Journal of Comparative Psychology, 8, 101

HENKIN, Robert, I., 1955, A Factorial Study of the Components of Music, Journal of Psychology, 39, 161

HENKIN, R. I., 1957, A Re-evaluation of a Factorial Study of the Components of Music, Journal of Psychology, 43, 301

HENRY, N. B., ed., 1958, Basic Concepts in Musical Education, 57th Yearbook of the National Society for the Study of Education, University of Chicago

HENRYSSON, S., 1971, Gathering, Analysing and Using Data on Test Items, in Thorndike, R. L., Educational Measurement, 2nd edn., American Council on Education

HEVNER, Kate, 1931, A Study of Tests for Appreciation of Music, Journal of Applied Psychology, 15, 575

HEVNER, Kate, 1934, Appreciation of Music and Tests for the Appreciation of Music, in Mueller, John M., et al, 1934, 83

HEVNER, Kate, 1935a, The Affective Character of the Major and Minor Modes in Music, Americal Journal of Psychology, 47, 103

HEVNER, K., 1935b, Expression in Music, Psychological Review, 47, 186

HEVNER, Kate, 1936, Experimental Studies on the Elements of Expression in Music, American Journal of Psychology, 48, 246

HEVNER, Kate, 1937a, The Affective Value of Pitch and Tempo in Music, American Journal of Psychology, 49

HEVNER, K., 1937b, The Aesthetic Experience: A Psychological Description, Psychological Review, 44, 245

HICKMAN, A., 1969, Musical Imaging and Concept Formation in School Children, Unpublished Ph.D. Thesis, Manchester University

HILTON, Lewis, B., 1969, [Review of] 'Aesthetic Judgment of High School Music Students' by C. V. Cowles, Bulletin 10, Council for Music Educ.

HOFFREN, J. A., 1962, The Construction and Validation of a Test of Expressive Phrasing in Music, Unpublished Ed.D. Dissertation, University of Illinois

HOFFREN, James, 1964, The Construction and Validation of a Test of Expressive Phrasing in Music, Journal of Research in Musical Education, 12, 159

HOLMSTROM, L. G., 1963, Musicality and Prognosis, Almquist and Wiksells

HOLT, R. R., 1962, Individuality and Generalisation in the Psychology of Personality, Journal of Personality, 30

HOLT, R. R., 1964, Imagery: The Return of the Ostracised, American Psychologist, 19, 254

HORST, P., 1953, Correcting the Kuder-Richardson Reliability for Dispersion of Item Difficulties, Psychological Bulletin, 50, 371

HUDSON, L., 1966, Contrary Imaginations, Methuen

HUDSON, L., 1968, Frames of Mind, Methuen

HUNT, R., 1935, School Music Method, Ashdown

JOHNSON, A. P., 1951, Notes on a Suggested Index of Item Validity, Journal of Educational Psychology, 42, 499

KAPLAN, Max, 1966, Foundations and Frontiers of Music Education, Holt, Rinehart and Winston

KELLEY, T. L., 1939, The Selection of Upper and Lower Groups for the Validation of Test Items, Journal of Educational Psychology, 30, 17

KESTON, M. J., and PINTO, I., 1955, Possible Factors Influencing Musical Preference, Journal of Genetic Psychology, 86, 101

KOBBÉ, G., 1906, How to Appreciate Music, Moffat Yard & Co.

KRATHWOHL, D. R., BLOOM, B. S., and MASIA, B. B., 1964, Taxonomy of Educational Objectives, II: Affective Domain, Longman

KWALWASSER, J., and DYKEMA, P. W., 1930, The Kwalwasser-Dykema Music Tests, Carl Fisher Inc.

KWALWASSER, J., 1953, Kwalwasser Music Talent Test, Mills Music Inc.

KWALWASSER, J., 1955, Exploring the Musical Mind, Coleman-Ross

KYME, George H., 1956, Are Musical Tastes Indicative of Musical Capacity? Journal of Research in Musical Education, 4, 44

LANGER, S. K., 1957, Philosophy in a New Key, Harvard University Press

LASZLO, Ervin, 1967, Aesthetics of Live Musical Performance, British Journal of Aesthetics, 7, 261

LAVIGNAC, A., 1899, 1903, Music and Musicians, translated by Marchant and Krehbile, G.P. Putnam's Sons

LEHMAN, Paul, R., 1968, Tests and Measurements in Music, Prentice Hall

LIFTON, Walter, M., 1961, The Development of a Music Reaction Test to Measure Affective and Aesthetic Sensitivity, Journal of Research in Musical Education, 9, 157

LONG, Newell, H., 1965, A Revision of the University of Oregon Music Discrimination Test, Unpublished Ed.D. dissertation, University of Indiana

LONG, N. H., 1967, Establishment of Standards for the Indiana-Oregon Music Discrimination Test (Final Report), U.S. Department of Health Education and Welfare

LOVELOCK, William, 1965, Common Sense in Music Teaching, G. Bell & Sons

LOWERY, H., 1926, Cadence and Phrase Tests in Music, British Journal of Psychology, 17, 111

LOWERY, H., 1932, Estimation of Musical Capacity, Proc. Manch.Lit. Phil. Soc., 76, No.6

LOWERY, H., 1943, Some Problems of Musical Education, Journal of the S.W. Essex Technical College and School of Art, 1, 3

LOWERY, H., 1952, The Background of Music, Hutchinson's University Library

LUNDIN, R. W., 1949, The Development and Validation of a Set of Musical Ability Tests, Psychological Monographs, 63: 305, 1

LUNDIN, R. W., 1967, An Objective Psychology of Music, The Ronald Press

McCLELLAND, David, C., 1961, The Achieving Society, Van Nostrand

McKELLAR, Peter, 1965, The Investigation of Mental Images, In Barnett, S. A., and McLaren, A., eds., Penguin Science Survey, 1965: B

MACKINTOSH, H. G., and MORRISON, R. B., 1969, Objective Testing, University of London Press

McKELLAR, Peter, 1968, Experience and Behaviour, Penguin

MACKERNESS, E. D., 1964, A Social History of English Music, Routledge, Kegan Paul

McLAUGHLIN, T., 1970, Music and Communication, Faber & Faber

McLEISH, John, 1950, The Validation of Seashore's Measures of Musical Talent by Factorial Methods, British Journal of Psychology, (Stat. Section), 3, 129

McLEISH, John, 1970, Students' Attitudes and College Environments, Cambridge Institute of Education (Cambridge Monographs on Education)

MACPHERSON, S., 1908, The Appreciation Class

MACPHERSON, S., 1923, The Appreciation Class: A Guide for the Music Teacher and the Student, Joseph Williams

MACPHERSON, Stewart, 1936, The Appreciation or Listening Class, Joseph Williams

MACE, F. S., 1951, The Appreciation of Music - An Educational Problem, Education Review (Inst. of Educn. Univ. of Birmingham), 4, 37

MAINWARING, J., 1941, An Examination of the Value of the Empirical Approach to Aesthetics, British Journal of Psychology, 32

MANNING, R. J., 1946, Music Appreciation, in Shaw, W., 1946

MARILL, G., and MULL, H. K., 1942, Further Study of Preferred Regions in Musical Compositions, American Journal of Psychology, 55, 110

MARTIN, F. David, 1967, The Power of Music and Whitehead's Theory of Perception, Journal of Aesthetics and Art Criticism, 25, 313

MAYNE, T. R., 1935, Music in the Modern School, Dent

MEYER, Leonard, B., 1956, Emotion and Meaning in Music, University of Chicago Press

MEYER, L. B., 1957, Meaning in Music and Information Theory, Journal of Aesthetics and Art Criticism, 15, 412

MEYER, L. B., 1959, Some Remarks on Value and Greatness in Music, Journal of Aesthetics and Art Criticism, 17, 486

MEYER, Max., 1903, Experimental Studies in the Psychology of Music, American Journal of Psychology, 14, 207

MILES, T. R., 1957, On Defining Intelligence, British Journal of Educational Psychology, 27, 153

MOLES, A., 1966, Information Theory and Esthetic Perception, University of Illinois Press

MUELLER, John, M., et al, 1934, Studies in Appreciation of Art, University of Oregon Publications, Vol.IV, No.6

MUELLER, Kate, Hevner, 1956, Studies in Music Appreciation, Journal of Research in Musical Education, IV, 3

MUNRO, T., 1963, The Psychology of Art: Past, Present, Future, Journal of Aesthetics and Art Criticism, 21, 264

MURSELL, James, L., 1937, The Psychology of Music, W. W. Norton

MURSELL, J. L., 1951, Music and the Classroom Teacher, Silver Burdett

MYERS, C. S., 1911, A Case of Synaesthesia, British Journal of Psychology, 4

MYERS, C. S., 1914, A Study of the Individual Differences in the Attitude toward Tones, British Journal of Psychology, Monograph Supplement

MYERS, C. S., 1922, Individual Differences in Listening to Music, British Journal of Psychology, 13, 52

MYERS, C. S., 1927, Individual Differencesin Listening to Music, Chapter 2, in Schoen, M., 1927

NIE, N. H., BENT, D. H., and HULL, C. H., 1970, Statistical Package for the Social Sciences (S.P.S.S.), McGraw-Hill

NORDENSTRENG, Kaarle, 1968, A Comparison between the Semantic Differential and Similarity Analysis in the Measurement of Musical Experience, Scandinavian Journal of Psychology, 9, 89

OGDEN, C. K., and RICHARDS, I. A., 1923, The Meaning of Meaning, Harcourt Brace

ORTMAN, Otto, 1926, On the Melodic Relativity of Tones, Psychological Monographs, 35, (No.162), 1

OSGOOD, C. E., SUCI, G. J., and TANNENBAUM, P. H., 1957, The Measurement of Meaning, University of Illinois Press

PAYNE, Elsie, 1967, Musical Taste and Personality, British Journal of Psychology, 58, 133

PAYNE, Elsie, 1961, The Emotion of Music and of Music Appreciation, Music Review, 22, 39

PEEL, E. A., 1945, On Identifying Aesthetic Types, British Journal of Psychology, 35, 61

PFLEDERER, M., 1966, How Children Conceptually Organise Sounds, Bulletin No.7, Council for Research in Musical Education, 1

PICKFORD, R. W., 1948, Aesthetic and Technical Factors in Artistic Appreciation, British Journal of Psychology, 38, 135

PRATT, C. C., 1931, The Meaning of Music, McGraw-Hill

PRIESTLY, Mary, 1975, Music Therapy in Action, Constable

RAINBOW, B., ed., 1968, Handbook for Music Teachers, 2nd edn., Methuen

REVESZ, G., 1946, Beziehung Zwischen Mathematischer und Musikalischer Begabung, Schweiz Zsch. f. Psychol., 5, 269

REVESZ, G., 1953, Introduction to the Psychology of Music, Longman

ROBERTS, W., Wright, 1930, Key Quality, Music and Letters, 11, 58

ROGERS, Vincent, R., 1956, Children's Expressed Musical Preferences, Unpublished Doctoral Dissertation, Syracuse University

ROUBERTOUX, Pierre, 1970, Personality Variables and Interest in Art, Journal of Personality and Social Psychology, 16, 665

ROUBERTOUX, P., and CARLIER, M., 1969, Une Dimension de la Personnalité - l'Introversion et les Preferences Esthétiques, Psychologie Français

ROUBERTOUX, P., CARLIER, M., and CHAGUIBOFF, J., 1971, Preference for Non-Objective Art: Personal and Psychosocial Determiners, British Journal of Psychology, 62, 105

RUSSELL, D. H., and RUSSELL, E. F., 1959, Listening Aids through the Grade, Bureau of Publications, Columbia University

ROZEBOOM, William, W., 1966, Foundations of the Theory of Prediction, Dorsey Press

RUMMEL, R. J., 1967, Understanding Factor Analysis, Conflict Resolution, 11, 444

SAVILLE, Peter, 1972, The British Standardisation of the 16P.F.: Supplement of Norms Forms A and B., N.F.E.R.

SAVILLE, Peter, and FINLAYSON, Laura, 1973, British Supplement to the High School Personality Questionnaire, (Form A), Anglicised 1968/69 edn., N.F.E.R.

SCHEINFELD, Amram, 1939, Musical Talent: An Original Genetic Study, in You and Heredity, ed. J. B. S. Haldane, Chatto and Windus

SCHNEIDER, Erwin, H., 1969, Music Education, Encyclopedia of Educational Research, 4th edn., ed. R. L. Ebel

SCHNEIDER, E. H., and GADY, H. L., 1967, Evaluation and Synthesis of Research Studies Relating to Music Education, Council for Research in Musical Education, Bulletin No. 9

SCHOEN, M., 1923, The Validity of Tests of Musical Talent, Journal of Comparative Psychology, 3, 101

SCHOEN, Max, 1925, Tests of Musical Feeling and Musical Understanding, Journal of Comparative Psychology, 5, 31

SCHOEN, Max, 1927, The Effects of Music, Kegan Paul

SCHOEN, Max, 1928a, Musical Talent and its Measurement, Musical Quarterly, 14, 255

SCHOEN, Max, 1928b, The Aesthetic Attitude to Music, Psychological Monographs, 39, Whole No. 177

SCHOEN, Max, 1940, The Psychology of Music, Roland Press

SCHOLES, P. A., 1935, Music the Child and the Masterpiece: Aims and Methods in Musical Appreciation, Oxford University Press

SEASHORE, Carl, 1919, The Psychology of Musical Talent, Silver Burdett

SEASHORE, C. E., 1938, Psychology of Music, McGraw-Hill

SEASHORE, C. E., LEWIS, D., and SAETVEIT, J. C., 1960, Seashore Measures of Musical Talents, Psychological Corporation

SHARPE, R. A., 1971, Music: The Information-Theoretic Approach, British Journal of Aesthetics, 11, 385

SHATIN, L., KOTTER, W., and DOUGLAS-LONGMORE, G., 1968a, Personality Traits of Music Therapists, Psychological Reports, 23, 573

SHATIN, L., KOTTER, W., and DOUGLAS-LONGMORE, G., 1968b, Personality Profile of Successful Music Therapists, Journal of Musical Therapy, 5, 111

SHAW, H. W., ed., 1946, Musical Education: A Symposium, Hinrichsen

SHAW, H. W., 1961, Music in the Secondary School, Dennis Dobson

SHERBURNE, Donald, W., 1966, Meaning and Music, Journal of Aesthetics and Art Criticism, 24, 579

SHUTER, Rosamund, 1968, The Psychology of Musical Ability, Methuen

SIEGEL, S., 1956, Nonparametric Statistics, McGraw-Hill

SILBERMANN, A., 1963, The Sociology of Music, Humanities Press

SIMPSON, Elizabeth, 1966, The Classification of Educational Objectives, Psychomotor Domain, College of Education, University of Illinois

SOPCHAK, A. L., 1955, Individual Differences in Response to Different Types of Music, Psychological Monographs, 69, Whole No. 396

STORR, Anthony, 1970, The Meaning of Music, Times Literary Supplement, 20th November 1970

STRONG, E. K., 1943, Appraising Vocational-Fitness by Means of Psychological Tests, Harper

STRUNK, O., ed., 1950, Source Readings in Music History, Faber & Faber Ltd.

SURRETTE, and MASON, 1907, The Appreciation of Music: A Course of Study for Schools, Colleges and General Readers, H. W. Gray & Co.

SWANWICK, K., 1973, Musical Cognition and Aesthetic Response, Psychology of Music, 1, 1

SWANWICK, K., 1973, Musical Cognition and Aesthetic Response, Bulletin of the British Psychological Society, 26, 285

TAYLOR, E. M., 1941, A Study of the Prognosis of Musical Talent, Journal of Experimental Psychology, 10, 1

TAYLOR, I. A., and PAPERTE, F., 1958, Current Theory and Research in the Effects of Music on Human Behaviour, Journal of Aesthetics and Art Criticism, 17, 251

THACKRAY, R. M., 1965, Creative Music in Education, Novello

TORRANCE, E. P., 1962, Guiding Creative Talent, Prentice Hall

TRABUE, M. R., 1923, Scales for Measuring Judgement of Orchestral Music, Journal of Educational Psychology, 14, 545

TROTTER, T. H. Yorke, 1924, Music and Mind, Methuen

TROWSDALE, G., Campbell, 1968, Listening and Music Appreciation: A Survey of Research and the Need for New Directions, The Journal of Education, University of B.C. Vancouver, 14

TUCKER, W. T., 1955, Experiments in Aesthetic Communications, Unpublished Ph.D. Thesis, University of Illinois,

TYLER, L. E., 1946, Exploratory Study of Discrimination of Composer Style, Journal of General Psychology, 34, 153

VALENTINE, C. W., 1919, An Introduction to the Experimental Psychology of Beauty, T. C. and E. C. Jack

VALENTINE, C. W., 1962, The Experimental Psychology of Beauty, Methuen

VERNON, P. E., 1930a, The Personality of the Composer, Music and Letters, 11, 34

VERNON, P. E., 1930b, The Phenomena of Attention and Visualisation in the Psychology of Musical Appreciation, British Journal of Psychology, 21, 50

VERNON, P. E., 1930c, Method in Musical Psychology, American Journal of Psychology, 41, 127

VERNON, P. E., 1930d, A Method for Measuring Musical Taste, Journal of Applied Psychology, 14

VERNON, Philip E., 1931, The Psychology of Music with especial Reference to its Appreciation, Perception and Composition, Ph.D. Dissertation, University of Cambridge

VERNON, Philip, E., 1933, The Apprehension and Cognition of Music, Proceedings of the Royal Music Association, 59, 61

VERNON, P. E., 1933, Synaesthesia in Music, Psyche, 10

VERNON, P. E., 1950, The Structure of Human Abilities, Methuen

VERNON, P. E., 1969, Intelligence and Cultural Environment, Methuen

WALLACH, Michael, A., 1959, Art, Science and Representation, Journal of Aesthetics and Art Criticism, 18, 159

WALLACH, Michael, A., 1960a, Personality Functions to Symbolic Sexual Arousal to Music, Psychological Monographs, 74, Whole No. 494

WALLACH, Michael, A., 1960b, Two Correlates of Symbolic Sexual Arousal, Journal of Abnormal and Social Psychology, 61, 396

WEDIN, Lage, 1969, Dimension Analysis of the Perception of Musical Style, Scandinavian Journal of Psychology, 10

WESTLAND, Gordon, 1967, The Psychologists Search for Scientific Objectivity in Aesthetics, British Journal of Aesthetics, 7, 350

WHELLAMS, F. S., 1973, Has Musicality a Structure, Psychology of Music, 1, 7

WHISTLER, H. S., and THORPE, L. P., 1950, Musical Aptitude Test, California Test Bureau

WHITE, W. F., and BUTLER, John, H., 1968, Classifying Meaning in Contemporary Music, Journal of Psychology, 70, 261

WHITTAKER, W. G., HUTCHISON, W. O., and PICKFORD, 1942, Symposium on the Psychology of Music and Painting, British Journal of Psychology, 33, 40

WHITTINGTON, R. T. W., 1957, The Assessment of Potential Musical Ability in Secondary School Children, Journal of Educational Psychology, 48, 1

WING, H. D., 1941, A Factorial Study of Musical Tests, British Journal of Psychology, 31, 341

WING, H. D., 1948, Tests of Musical Ability and Appreciation, British Journal of Psychology, Monograph Supplements, No. 27 (2nd edn., 1968)

WINN, Cyril, 1954, Teaching Music, Oxford University Press

WITKIN, H. A., et al, 1962, Psychological Differentiation, Wiley

WOBER, Mallory, 1968, Towards an Ecological and Informational Theory of Aesthetics, Bulletin of the British Psychological Society, 21, 235

YINGLING, R. W., 1962, Classification of Reaction Patterns in Listening to Music, Journal of Research in Musical Education, 10,105

YOUNGBLOOD, J. E., 1960, Music and Language: Some Related Analytical Techniques, Unpublished Doctoral Thesis, Indiana University

ZINC, Sidney, 1960, Is Music Really Sad?, Journal of Aesthetics and Art Criticism, 19